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ABSTRACT

This publication reports on the fall 1997 conference of the Mid-Continent Regional Educational Laboratory (McREL). It provides an account of the keynote sessions and concurrent sessions, a bibliography of published works related to each session, and summaries of other portions of the conference. The keynote sessions included: (1) "Understanding the Complexities of Standards-Based Reform" (presented by Elliot Eisner & Bob Marzano; summarized by Jan Stapleman); (2) "Belief and Research: Culture, Context, and Dysfunctional Paradigms" (presented by Asa G. Hilliard III; summarized by Mary Lee Barton); (3) "Learning for Understanding in Individuals and Organizations" (presented by David Perkins; summarized by Diane McIntyre Wilber); (4) "Revolutionizing America's Schools: Democracy, Powerful Learning, and the Professional Imperative" (presented by Carl Glickman; summarized by Diane McIntyre Wilber); and (5) "Connecting the Information Classroom with the Digital Tool Set" (presented by John Kuglin; summarized by Diane McIntyre Wilber). The concurrent sessions included: (1) "What Are the Basics of Instruction?" (presented by Bob Marzano; summarized by Jana Caldwell); (2) "Standards Work at McREL" (presented by John Kendall; summarized by Lyn Chambers); (3) "Performance Activities" (presented by Hillary Michaels and Ceri Dean; summarized by Jan Stapleman); (4) "The Personal Domain: What Are the Applied Research and Development Issues?" (presented by Barbara McCombs, Patricia Lauer, and Audrey Peralez; summarized by Lyn Chambers); (5) "The School and Organizational Learning" (presented by Susan Toft Everson, Don Burger, and Dan Jesse; summarized by Susan Toft Everson with Jan Stapleman); (6) "Systemic Integration and Systemic Change" (presented by Louis Cicchinelli; summarized by Mary Lee Barton); (7) "Technology Lab" (presented by John Kuglin and Chris Rapp; summarized by Jana Caldwell); and (8) "Paul M. Nachtigal: 1997 McREL Award of Excellence" (Diane McIntyre Wilber). (SM)

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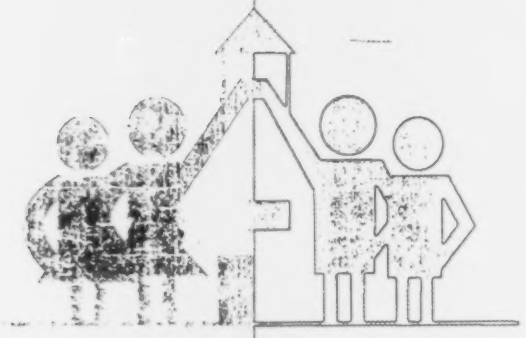

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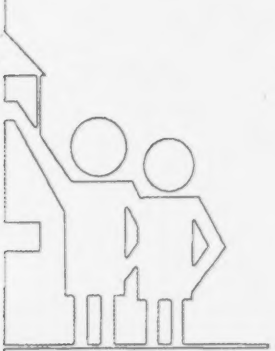

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Overview

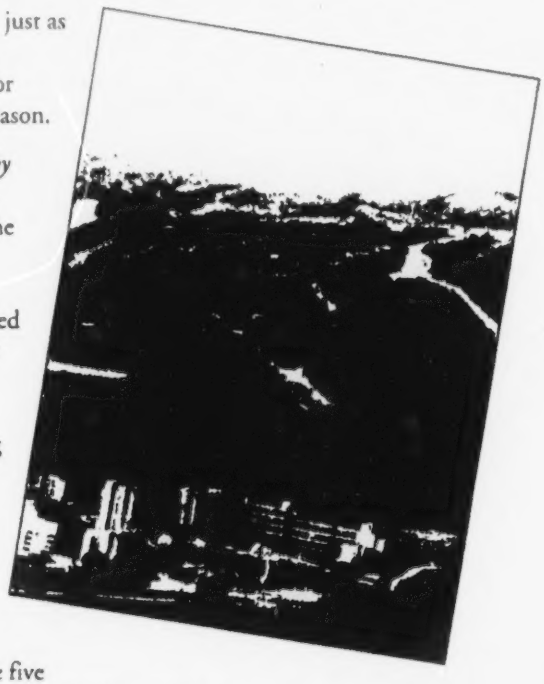
By Jan Stapleman

The little conference that could

In late October, 1997, the Mid-continent Regional Educational Laboratory brought together a group of educators from McREL's seven-state region to explore the role of beliefs and research in promoting thoughtful teaching practice. Like other McREL conferences, the fall 1997 conference required months of planning and organization — a challenge familiar to McREL Senior Director Fran Mayeski, who led the team of conference organizers. What Mayeski and her team didn't anticipate, however, was the challenge Mother Nature would pose. Ultimately, the gathering they created in the mountain town of Breckenridge, Colo., offered not only a chance for participants to witness powerful presentations by some of the nation's most respected personalities in education but also opportunities for spontaneous, thoughtful reflection among peers.

While McREL staff members were busy setting the stage for these significant dialogues, Mother Nature (ever the master at upstaging) was working up an event of her own. On Oct. 24, two nights before the opening of the pre-conference sessions, the Blizzard of '97 whipped through the Midwest, paralyzing highway travel from Colorado's Front Range east and bringing air traffic at Denver International Airport to a halt. Approximately 36 hours later, with no idea how many people would brave the storm to attend, conference organizers and session leaders in the Denver area stubbornly dug out from underneath 22 inches of snow and migrated en masse toward Breckenridge (where, because of a dearth of the real stuff, rows of snow-making machines were noisily throwing powder to prepare the slopes for the opening of the resort's ski season that weekend).

As Midwesterners from Denver to Omaha cleared roads and restored power, all but 28 of the 305 conference registrants checked in at the Beaver Run Resort in Breckenridge. Nestled alongside Breckenridge ski runs, this "little conference that could" came to a successful conclusion on Oct. 30, just as diehard skiers and snowboarders arrived for their first runs of the season.



This issue of *Noteworthy* reports on the McREL 1997 fall conference, the educational issues it addressed and the personalities that enabled all this work and worry to blossom into a unique and "noteworthy" gathering of educators.

A conference menu

On the following pages, you will find detailed accounts of the five keynote presentations. A brief bibliography of published works related to the session accompanies each. Also, you will find reports on those concurrent sessions associated with McREL research, as well as summaries of other portions of the conference. Although not all sessions are covered herein, the following is a "menu" of all conference offerings:

The Pre-Conference Institute

During the first three days of the conference, the Pre-Conference Institute featured McREL staff members sharing information from their particular areas of expertise in intensive, one-and-a-half-day sessions. The six sessions, described in more detail in another section of this report, included

- Technology: Shaping the Future of Education — former Senior Director of Technology John Kuglin and Senior Associate Chris Rapp
- Supervision in a Standards-Based System — Senior Associate Debra Pickering

- Designing a Standards-Based District — Senior Associate Diane Paynter
- Designing Data-Driven Systems for Student Learning and School Improvement — Senior Associates Donald Burger and Ceri Dean
- Maximizing Systemic Change: The Role of Beliefs and Perceptions in Promoting Thoughtful Learning Communities — Senior Director Barbara McCombs; H. Jerome Freiburg, Director of the University of Houston's Consistency Management Project; and Senior Associate Patricia Lauer
- Teaching Reading in the Content Areas — Program Assistant Mary Lee Barton

Keynote sessions

The conference's five keynote sessions included thought-provoking presentations by several respected leaders in education. The goal of the conference was to challenge participants to re-examine their beliefs, and each of the main speakers did his part toward stimulating that process.

Understanding the Complexities of Standards-Based Reform

With much of McREL's work centering around standards-based reform, the opening session cut to the chase, exploring criticism and defense of that approach within a debate format. McREL Institute Deputy Director Bob Marzano faced off against Stanford Professor of Education and Art Elliot Eisner, each responding to questions posed by McREL President and Executive Director Tim Waters. While Marzano has led McREL's efforts to facilitate and encourage standards-based education, Eisner has long emphasized looking beyond standards when valuing student work. The two presented their individual views in a lively, thoughtful dialogue that left some in the audience wondering if the approaches the two men advocate aren't actually closer than may be obvious at first glance.

Belief and Research: Culture, Context and Dysfunctional Paradigms

In the second session, Georgia State University Professor of Urban Education Asa Hilliard, III, maintained that the largely unexplored, and in some cases erroneous, beliefs held by many mainstream educators have resulted in ineffective and even damaging educational practice. He spoke candidly about his concerns — that the way we view students and learning affects what we teach, how we teach, and ultimately, student learning. He discussed the importance of teaching in context and said IQ testing does more harm than good. He called for a fundamental paradigm shift in education in which we view human intelligence as modifiable. He declared that the most important domain — the spiritual domain — is missing from most school reform initiatives.

Learning for Understanding in Individuals and Organizations

David Perkins, professor at Harvard's Graduate School of Education, discussed his work of 20 years developing a model of "understanding as performance." Students learn best when they are performing activities related to the subject, not when they are sitting and listening to lectures, Perkins said. "Understanding something is a matter of being able to act with respect to it in flexible, thoughtful ways," he said. "When you understand something, your knowledge is

actionable — not just in a rote way but in a generative or creative way." Perkins described his continuing research which applies this "understanding as performance" model to organizations.

Revolutionizing America's Schools: Democracy, Powerful Learning and the Professional Imperative

Carl Glickman, professor of education at the University of Georgia and chair of the Program for School Improvement, described the concept of "democracy as education," or democracy integrated into the educational process itself. "The main goal of public education is to prepare students to engage productively as valued and valuable citizens of a democratic society," he said. "If we take seriously the goal for why we exist, then kids will learn in profoundly better and different ways than they've ever learned before." Glickman challenged schools to begin operating in a democratic fashion. "Democratic learning is not setting a category for a student that then becomes the expectation," Glickman said. "At democratic schools, there is no limitation. Every kid is challenged to go as far as he or she possibly can."

Connecting the Information Classroom with the Digital Tool Set

In the final keynote session, former McREL Senior Director of Technology John Kuglin wowed his audience with fascinating glimpses of emerging computer technologies and brief demonstrations of how they might be employed in the classroom. The session provided a formal discussion of technologies that participants could also examine more closely in a state-of-the-art, multimedia computer lab open throughout the conference. Kuglin provided a brief history of the recent dizzying pace of technological progress and ventured a few predictions about the direction of that progress in the near future.

Concurrent sessions

Sandwiched in alongside keynote sessions were three series of concurrent sessions designed to expand on and complement the main presentations. One series, presented by the McREL research staff, included seven sessions detailing McREL's research agenda. Those sessions, which are covered in more detail later in this report, included

- What Are the Basics of Instruction? — Bob Marzano, deputy director of the McREL Institute
- Standards Work at McREL — John Kendall, senior associate
- Performance Activities — Hillary Michaels and Ceri Dean, senior associates
- The Personal Domain: What Are the Applied Research and Development Issues? — Barbara McCombs, senior director; Patricia Lauer and Audrey Peralez, senior associates
- The School and Organizational Learning — Susan Toft Everson, former senior director; Don Burger and Dan Jesse, senior associates

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- Systemic Integration and Systemic Change — Louis Cicchinelli, deputy director
- Technology Lab — John Kuglin, former senior director of technology and Chris Rapp, senior associate.

Two additional series of concurrent sessions provided instruction and dialogue on numerous and diverse education topics. Although not described in this report, their titles and session leaders are listed below. All session leaders are McREL staff unless otherwise noted.

- Data Driven Systems and the Assessment Toolkit for Professional Staff Developers — Don Burger and Ceri Dean, senior associates
- Strategies for Sustaining Small Rural Schools — Michael Arnold, senior associate, and Jerry Hoffman, co-director of Nebraska's School at the Center Project
- Assessment Strategies to Meet the Needs of Limited English Proficient and Mobile Students — William Bansberg, senior director, and Richard Rangel, senior associate
- How Well Do We Know Our Kids? The Need for and Benefits of Learner-Centered Practices — Barbara McCombs, senior director; Patricia Lauer, Audrey Peralez and Janet Bishop, senior associates
- Linking National Board Certification with Teachers' Professional Growth — Linda Gleason and Pat Schaffer, teachers
- Using Puppets to Integrate Curriculum and Enhance Interactive Instruction — Markie Scholz, puppeteer
- The Annenberg Rural Challenge: Place-Based School Reform — Paul Nachtigal, national director, Annenberg Rural Challenge
- Third International Mathematics and Science Study — Results and Implications for Classroom Practice — John Sutton, senior director
- Current Research and Practice in American Indian Communities — Joann Sebastian Morris, director, Office of Indian Education Programs
- Common Ground in the Standards-Based Classroom — Susan Sparks, Northern Colorado BOCES
- School Wars — Barbara Gaddy, senior associate
- Do Accreditation Requirements Influence School Improvement Activities? — Lynde Paule, senior associate
- Assessing and Using Information from the National Center for Education Statistics — Phyllis Thomas, senior associate; Bob Keller, senior director; and Hillary Michaels, senior associate
- The Annenberg Rural Challenge in the McREL Region — Paul Nachtigal, national director, Annenberg Rural Challenge
- Diversity in the Classroom: A Different Approach to Student Success — Nilda Garcia Simms and Audrey Peralez, senior associates
- Charter Schools: How Policy and Politics Impact Their Success — Gina Burkhardt, executive services director, Southeastern Regional Vision for Education
- Self-Assessment and Reflection Tools for Teachers: Making Learner-Centered Practices Happen for All Students — Barbara McCombs, senior director; Patricia Lauer and Audrey Peralez, senior associates

- Scaling Up Issues — Susan Toft Everson, former senior director
- Teacher-Developed State Tests — Don Burger, senior associate
- Linking Professional Development to Improved Student Achievement — Ceri Dean, senior associate; Sandee Crowther, division director of evaluation and standards, Lawrence Public Schools; and Melisa Hancock, teacher, Manhattan, Kan.
- School Finance Reform: Lessons from Wyoming — Michael Arnold, senior associate, and practitioners from the region
- Creating a Culture of Transformation — Jo Sue Whisler, senior associate
- Report of the National Commission on Teaching and America's Future: The States' Response — Annette Morgan, co-chair of Missouri's Commission on Teaching and America's Future
- Kentucky Education Reform: "Focusing on Continuous Student Improvement" — Gail Clark, senior associate

A time for reflection

What better place than the beautiful Rocky Mountains to reflect on one's beliefs and assumptions and discuss with peers how those beliefs impact individual practices in education? The resort facilities provided plenty of expansive mountain views, and in addition to individual soul-searching inspired by those surroundings participants also had opportunities to join group reflection sessions. In these sessions, conference attendees could re-examine new information presented in the sessions, share their feelings about presentations, and exchange viewpoints and personal experiences with other educators. You will find a few comments from those reflection sessions sprinkled throughout this report.

Honoring a longtime friend

McREL was pleased to have an opportunity at the conference to honor a colleague and friend, Paul Nachtigal, who is national director of the Annenberg Rural Challenge and former director of The Rural Institute at McREL. During an awards ceremony held the evening of Oct. 28, Nachtigal received the 1997 McREL Award of Excellence, along with heartfelt accolades and heartwarming recollections from a series of former co-workers.

Pre-conference

By Jan Stapleman

McREL staffers share expertise

For early-bird attendees, several McREL staff members shared information from their particular areas of expertise in intensive, one-and-a-half-day sessions:

In ***Technology: Shaping the Future of Education***, McREL former Senior Director of Technology John Kuglin and Senior Associate Chris Rapp guided participants through a hands-on tour of the hottest new educational technologies in a state-of-the-art, multimedia computer lab with high-speed Internet connectivity. Several of the top technology providers were on hand to discuss how their products could be integrated into classroom activities.

In a session entitled ***Supervision in a Standards-Based System***, McREL Senior Associate Debra Pickering urged participants to re-examine and restructure the role of supervision to make it more congruent with the current national emphasis on standards. That emphasis, she said, requires that teachers focus on what students are learning, rather than on the presence or absence of teaching behaviors. In order for a standards-based system to be successful, staff development, school improvement and teacher evaluation must assume a similar focus. Participants learned strategies for measuring teacher and school effectiveness by monitoring student learning. They practiced evaluating teachers by using criteria for effective learning (rather than criteria for effective teaching) and studied data collection tools that measure student learning.

McREL Senior Associate Diane Paynter guided attendees through the implications and technical aspects of ***Designing a Standards-Based District***, pointing out that designing such a system is a rigorous and highly technical process. Paynter cautioned that a district must possess a solid commitment and focus its efforts in order to achieve this goal. Participants were provided a process that district standards-writing committees could use to articulate content standards, thinking and reasoning standards and/or lifelong learning standards. In addition, they explored issues related to aligning instruction, curriculum, reporting systems, assessments and interventions to standards and were led through a series of exercises designed to explore the implications involved in each of these areas. Paynter pointed out that a district may prefer to design a standards-referenced system, as opposed to a standards-based system, or a combination of these two systems. Those attending received a template that a district can use as it considers what approach or design will be most appropriate.

McREL Senior Associates Don Burger and Ceri Dean discussed the collection and use of data in ***Designing Data-Driven Systems for Student Learning and School Improvement***. They presented strategies for designing systems that use various types of data, explaining that collecting data isn't enough — educators must also know how to use it in order to make a difference for students. Participants learned what types of data are most useful for various purposes; how to collect, analyze and interpret data; and what software programs are useful for data analysis and interpretations. Burger and Dean presented strategies for reporting back to the school community and discussed how to use data to make decisions.

In ***Maximizing Systemic Change: The Role of Beliefs and Perceptions in Promoting Thoughtful Learning Communities***, McREL Senior Director of Human Development and Motivation Barbara McCombs teamed up with Director of the University of Houston's Consistency Management Project H. Jerome Freiberg and McREL Senior Associate Patricia Lauer to examine the impact of educators' beliefs and perceptions upon their work. The presenters explained that educators trying to achieve

systemic change must align their beliefs and perceptions, working within a process that is nonthreatening and respectful of diverse perspectives. This process requires an understanding of the principles of learning and change and of the role beliefs and perceptions play in personal change as well as systemic change. Freiberg described how the principles could be used to redefine discipline practices and encourage students to take increasing responsibility for their own self-management. McCombs, Freiberg and Lauer provided a self-assessment and reflection model which could be adopted as part of an overall approach to sustainable systemic change.

McREL Program Assistant Mary Lee Barton led participants through an examination of ***Teaching Reading in the Content Areas***, presenting strategies for reading informational text that can be integrated into various content area courses. Explaining that prior knowledge plays a crucial role in text comprehension, Barton demonstrated how to use pre-reading strategies to activate, assess and extend students' prior knowledge. The group practiced working with the distinctive features of informational text to maximize reading comprehension and learned how effective readers employ metacognitive reading strategies.

Understanding the complexities of standards-based reform — Biographical sketches

The opening session featured a discussion on standards between two leaders in education, Elliot Eisner and Bob Marzano, moderated by Tim Waters, who has also devoted his career to improving education.

Elliot W. Eisner

Elliot Eisner is professor of education and art at Stanford University. He trained as a painter at The Art Institute of Chicago and later studied design at Illinois Institute of Technology's Institute of Design, where he earned a master's degree. His work at these institutions and his doctoral study at the University of Chicago provided the major conceptual resources for his scholarship in three fields: arts education, curriculum studies and educational evaluation.

Eisner's research interests focus on the ways in which the arts expand awareness and advance human understanding. He is also interested in the generic problems of school improvement, especially how schools can become educative institutions for both children and the adults who work with them.

Eisner's published work includes fifteen books, among them: *Educating Artistic Vision, The Educational Imagination, Cognition and Curriculum Reconsidered* and *The Enlightened Eye.*

Eisner has received numerous awards for his work, including the Palmer O. Johnson Memorial Award from the American Educational Research Association. He received a John Simon Guggenheim Fellowship, as well as a Fulbright Fellowship, and was a fellow at the Center for Advanced Study in the Behavioral Sciences.

Eisner is a member of the Royal Norwegian Society of Sciences and Letters and the Royal Society of Art in the United Kingdom. He was also elected to the National Academy of Education in the United States.

Eisner has served as president of the National Art Education Association, the International Society for Education through Art, the American Educational Research Association, and is currently president-elect of the John Dewey Society.

Robert J. Marzano

Bob Marzano is deputy director of the McREL Institute, where he has developed programs and practices used in K–12 classrooms that translate current research and theory in cognition into instructional methods.

Marzano received his bachelor's degree in English from Iona College in New York, a master's degree in education in reading/language arts from Seattle University, and a doctorate in curriculum and instruction from the University of Washington, Seattle. Prior to his work with McREL, Marzano was an associate professor at the University of Colorado at Denver and a high school English teacher and department chair.

Marzano headed a team of authors to develop *Dimensions of Learning*, a comprehensive model of learning designed to help pre-K–12 educators increase their own understanding of the learning process and of the nature of knowledge. He is senior author of *Tactics for Thinking*, a program addressing the teaching and use of thinking skills in classrooms. The 22 thinking skills described in this work form the basis for the *Dimensions in Learning* program.

Marzano also co-authored *Literacy Plus: An Integrated Approach to Teaching Reading, Writing, Vocabulary, and Reasoning*, a literature-based approach to teaching which helps students attain a higher level of literacy.

An internationally known trainer in thinking skills and literacy, Marzano has authored 14 books and over 100 articles and chapters in books on such topics as reading and writing instruction, thinking skills, school effectiveness, assessment, record-keeping and standards-based instruction.

J. Timothy Waters

Tim Waters, the president and executive director of McREL, has more than 25 years of experience in education as a superintendent, special advisor to the governor of Arizona, principal, dean of students and teacher.

Waters received his bachelor's degree at the University of Denver in 1970. He earned a master's degree in 1973 and a doctorate in education in 1986, both from Arizona State University.

Waters has a strong background and expertise in the theory and application of systemic change processes in educational systems and in the implementation of effective reform. As superintendent of public schools in Greeley, Colo., he led a seven-year effort in systemic reform to ensure the success of every student. This standards-based effort resulted in dramatic achievement gains for all students and, in particular, for minority students and disadvantaged children. In 1990, Waters co-founded the Institute for Peak Performing Schools, whose purpose is to contribute to the effectiveness of the American public school system.

Waters was recently re-appointed by Colorado Governor Roy Romer to serve on the Colorado Commission on Higher Education representing the 4th Congressional District. His many awards include the Equity Excellence Award from the Colorado Institute for Gender Equity in Vocational Education in 1998 and recognition by the League of United Latin American Citizens for "Distinguished Service to Hispanic Children" in 1989. In 1986, he was appointed by Secretary of Education William Bennett to serve on the U.S. Department of Education "Excellence in Elementary Education" school selection panel. From 1985 to 1986, Waters served as special advisor for education to Arizona Governor Bruce Babbitt.

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by Jan Stapleman

Understanding the complexities of standards-based reform

— Elliot Eisner & Bob Marzano, moderated by Tim Waters

The opening session of the McREL fall conference set a tone of lively dialogue and honest examination of personal beliefs as two respected personalities in education from opposite sides of the issue debated the value of standards.

Elliot Eisner, professor of education and art at Stanford University, brought to the discussion the perspective he's gained from work in three fields: arts education, curriculum and educational evaluation. A painter and art teacher early in his career, Eisner said he is most proud of his efforts to apply artistic principles to educational practice, theory and research. His many published works include articles critical of the standards-based movement.

In contrast, Bob Marzano is directly involved in the development of national and state standards. As deputy director of the McREL Institute, Marzano and his colleague John Kendall wrote *Content Knowledge: A Compendium of Standards and Benchmarks for K–12 Education* and *A Comprehensive Guide to Designing Standards-Based Districts, Schools and Classrooms.*

Session moderator Tim Waters, president and executive director of McREL, has over 25 years' experience in education during which he has devoted considerable effort toward implementing standards-based education.

(For more information on the work of Eisner, Marzano, Waters and others who have contributed to the national dialogue on standards, please refer to the biographical sketches and bibliography accompanying this section.)

Setting the stage: background and definitions

The 1983 publication of *A Nation at Risk: The Imperative for Educational Reform* by the U.S. Department of Education's National Commission on Excellence in Education prompted a proliferation of reform efforts and a firestorm of debate about what constitutes school reform. One reform effort which evolved in the shadow of that controversy — standards-based education — seeks to identify what students should know and be able to do at particular points in their education and to implement assessments based on those articulated standards.

Marzano and Kendall, in the two volumes cited above, define standards as broad categories of knowledge that are broken down into benchmarks. They identify three categories of benchmarks: statements of information and skills, performance activities and performance tasks. They differentiate between declarative and procedural knowledge, defining declarative knowledge as information with component parts and procedural knowledge as the use of processes and skills.

Eisner objects to this emphasis on standards, arguing that since children develop at different rates and excel in contrasting areas, variance in their performance should be increased, not diminished. "Uniformity in outcome and speed in performance are not necessarily virtues," he wrote in an article entitled "Do American Schools Need Standards?" published in the May 1994 issue of *The School Administrator.* Although Eisner acknowledged in the article that standards may be applied to rudimentary aspects of school learning — such as the ability to multiply, write grammatically and spell accurately — he asserted they are not useful in recognizing achievements representing our highest educational aspirations, such as encouraging insightful interpretation and developing each child's unique aptitudes.

Instead of standards, Eisner has written, school reform should value student work that displays ingenuity and complexity. In order to appraise work indicative of a child's intellectual signature, he has said, a teacher must exercise his or her own judgment, employing not standards but rather a set of criteria that represent qualities we consider important, but which do not in themselves necessarily guarantee the success of any particular work.

Opening statements

Marzano

Bob Marzano opened the session by outlining the rationale behind McREL's focus on standards-based education. He first emphasized that focus is not a reaction to the panic and fear created in 1983 by the publishing of *A Nation At Risk*. Instead, he said, McREL supports standards because they address three problems in education: (1) curriculum, (2) feedback to teachers and students, and (3) application of knowledge.

1. *Curriculum* — In some districts, Marzano asserted, the curriculum may be set forth in a series of three-ring binders but it is not necessarily reflected in the classroom. "Curriculum in this country is a crap shoot," he declared, adding that there is great variation from classroom to classroom in what teachers teach. When teachers are asked why they don't cover a topic, he noted, they may even respond that it is because they don't like that particular subject.
2. *Feedback to teachers and students* — Marzano said there are two ways to gauge achievement, by grades and by external tests (including standardized norm-referenced, standardized criterion-referenced and performance assessments). Research on grading shows that individual teachers use varying criteria — such as effort, behavior, participation, assignments and content — and also weigh these criteria differently, so the same work could earn a wide range of grades from different teachers. Research also shows that standardized test scores are "wobbly," or subject to a high standard error of measurement — as high as 30 points for the SAT.
3. *Application of knowledge* —A study by the National Assessment of Education and Progress indicates that American students may do well at recall of facts but not so well at knowledge application.

Marzano acknowledged certain problems posed by standards-based education, admitting it is sometimes difficult for teachers to cover all the content set forth in standards. Although it would require approximately 15,000 hours to cover the standards and benchmarks currently set forth, there are only 9,000 hours of instruction time available from Kindergarten through Grade 12. He also cited a knee-jerk response to standards that gives rise to some folks' belief that the education system can be fixed by simply giving students more tests. "Obviously that won't work," he declared.

Marzano reminded the audience that there are many forms of standards-based education. He said although schools don't have to take a standards-based approach to all aspects of education, it makes sense to hold students responsible for standards in many critical areas and to benefit from the improved feedback possible under a standards-based system.

Eisner

Elliot Eisner responded by endorsing Marzano's vision of education but countered that he doesn't see standards addressing the three concerns

Marzano described. "If teachers are not employing a program that makes educational sense, the presence of standards won't address that," he declared.

Eisner explained his belief that educators need to examine elements other than standards, such as curricula, and pedagogical and feedback issues. Good feedback to teachers can be achieved by allowing teachers to become colleagues, providing each other with constructive criticism. Teachers now operate alone, he asserted, without beneficial feedback from others.

Eisner acknowledged that standards can have some up sides, such as engaging teachers, parents, school board members and others in discussions about outcomes. But he expressed concern about the tensions standards create between clarity, specificity and feasibility. He said the large number of standards and benchmarks currently set forth for K–12 students requires teachers to assess an unreasonable number of proficiencies.

Eisner said he has found no research results supporting the use of standards. For example, the Third International Mathematics and Science Study in 1997 produced no evidence of improved performance in any of 13 countries using standards.

Although Eisner feels standards have some value, he said using them as a basis for educational reform is an oversimplification. We need to think more analytically and ecologically about education, he said, considering other factors, such as school structure and teacher competence. We need to consider not only what students can do in school but what they can do better in life, he added. He questioned why we are setting standards for content, teachers and kids but not for professors, superintendents and school board members.

Eisner stated that schools should increase variance among students while also increasing the mean. He reminded the audience that children grow and learn at different paces and that teaching should not mean simply enforcing someone else's values.

The educational picture is complex, Eisner concluded, and solutions to its problems require subtlety. He said although Marzano and he are both concerned about bettering education, he doesn't believe that establishing a large number of standards and benchmarks will help.

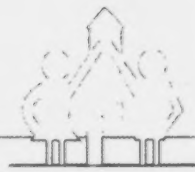
A metaphor for standards-based education

Moderator Tim Waters asked Eisner and Marzano to describe how they see standards-based education in terms of a metaphor.

Marzano said schools can now be regarded as a basketball game in which we say to students, "Here is the ball, here's the court, now go for it." Standards-based education, he explained, would bring organization to that game.

He also slipped in a response to Eisner's concern for the large number of benchmarks by commenting that teachers have always been called upon to handle numerous pieces of information. "The numbers that scare you don't scare me," he told Eisner.

Eisner, calling the basketball metaphor an apt one, said the game is improved not by standards but by players working hard and benefiting from



good advice from coaches (or teachers) who know what to say, and when, and to whom.

Formalizing existing standards

"Haven't teachers always used standards?" asked Waters. "What's wrong with making them explicit?" he asked Eisner. "What advantage is found in formalizing them?" he queried Marzano.

Eisner replied that he wouldn't define as standards the items listed in Marzano's and Kendall's compendium, because a standard is usually considered to be a unit of measure. The benchmarks listed are too general, he added, and he is unclear how educators would determine if students have achieved the standards or not.

Marzano, in turn, defined the terms used in his book. A content standard is a general topic, he explained. A benchmark reflects a specific piece of information within that standard. A performance standard is the acceptable level of understanding. Actual performance standards within a general mathematics standard would include being able to perform addition; social studies performance standards might include understanding democracy.

Construction of meaning is personal and that produces different outlooks, Eisner responded. He called for classrooms which would allow students to construct their own meanings, which wouldn't have to be identical to the outcomes in performance standards, but would be more difficult for teachers to evaluate. "Education should cultivate productive idiosyncrasy," he said.

Eisner expressed his concern about the call for "world-class" standards. "We've redefined education as if we're in an educational Olympics," he declared. Cross-national comparisons disregard differences in values, he added. We must consider our own cultural values and decide what kind of childhood we want our kids to have, rather than trying to adapt to one set of worldwide values.

Marzano countered that just because schools employ standards doesn't mean kids won't be allowed to construct their own meanings. But that doesn't mean that the end product should not be some common knowledge about a subject, he insisted.

Standards and variance between individuals

Moderator Waters referred to Eisner's comment about increasing variance while increasing the mean and applied it to the issue of closing the achievement gap. "Are you suggesting we shouldn't be concerned with that gap?" he asked Eisner. "And how can standards-based education help to close that gap?" he asked Marzano.

Noting that children are born with different aptitudes, Eisner said an optimal educational environment would allow each student to progress at his or her own pace in each subject. Some students would have strengths and progress faster in some areas, and other students would excel in other areas. This differential performance would represent an optimal fit, so variance across students would increase and so would the mean.

Eisner said he realizes this setup might present practical and political problems, but it would produce a self-realized population — it would allow every child to find his or her place in the sun.

He noted that teachers teach in a personalized manner. They provide their students with various examples to help them learn, based on a set of criteria formed from the teachers' own experience and values, not based on consulting a set of standards. Standards could serve to fragment that process, he warned.

Marzano responded by agreeing with Eisner's desire to increase the variance while increasing the mean. "But how do we get there?" he asked. Now we have expectations to improve education but no means to get there. If public expectations are not met, our efforts will be viewed as a failure, Marzano warned, adding that standards provide a concrete step toward improvement.

"We've redefined education as if we're in an educational Olympics."
— Elliot Eisner

If we had consistency across districts and grades now, we wouldn't need standards. But the reality is that we now have many huge districts, each setting its own curriculum.
— Bob Marzano

If we had consistency across districts and grades now, Marzano continued, we wouldn't need standards. But the reality is that we now have many huge districts, each setting its own curriculum.

Eisner pointed out that three teachers may teach in three different ways, but all can be appropriate. We can't make teaching uniform, he warned. Curricula will be interpreted differently by different teachers.

Marzano countered that standards-based education addresses the content of what is taught, not the instructional activities. "It doesn't dictate the methods to get learning," he explained.

Eisner expressed his concern that standards only address the mastery of information. In order to understand the information, he said, one must understand how it was obtained. To understand science, for instance, one must understand the process of scientific inquiry.

In addition, he continued, we need to determine not only whether students learn what was intended, but what else they learned. Much of what schools teach, he said, they teach implicitly. Only a "goal-free evaluation" will be able to evaluate that.

"Do students have to rediscover all scientific principles?" Marzano asked Eisner.

"No, but they must understand the fallibility of science," Eisner replied.

"Why would standards-based education preclude this?" Marzano queried, explaining that a performance standard could be established in which students are asked to define the context of scientific discovery. Marzano warned of a numbers game, however, in which a standard on understanding the atom might have to be given up in order to include one on scientific inquiry. The decision on where to put such emphasis is up to local communities, he declared.

Eisner asked Marzano what other solutions he would regard as important for school improvement besides standards.

In addition to standards, Marzano listed feedback, planning, assessment and teachers working together. "But if standards are assumed to negate the other strategies, we could end up throwing out a powerful tool," he said.

Eisner responded that he would be happier if standards were simply included as part of a more inclusive approach to reform, rather than being perceived as a mission unto itself. "There is a zeal here and it's good to have zeal, but it's also good to understand this is a complex picture," Eisner said. "And that's what I bring to this conversation."

Marzano responded that if the education system is overloaded with a multitude of changes, which in turn can cause other changes, the process could create a bifurcation or paradigm shift. In some cases, he said, such a shift can be harmful. He prescribed standards-based education as a means of "ratcheting up" reform through a gradual process. "We can't go too far too fast," he concluded.

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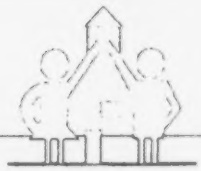

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Asa G. Hilliard, III

Biographical sketch

Asa G. Hilliard, III, is the Fuller E. Callaway professor of urban education at Georgia State University, with joint appointments in the Department of Educational Policy Studies and the Department of Educational Psychology and Special Education.

A teacher, psychologist and historian, he began his career in the Denver Public Schools. He earned a bachelor's degree in psychology, a master's degree in counseling, and a doctorate in educational psychology from the University of Denver, where he also taught in the College of Education and the College of Arts and Sciences in the Honors Program in philosophy.

Hilliard subsequently served on the faculty at San Francisco State University for 18 years, during which time he was a department chair and dean of education. He also served as a consultant to the Peace Corps and superintendent of schools in Monrovia.

During six years living in Liberia, West Africa, he served as a school psychologist.

Hilliard has participated in the development of several national assessment systems, such as a proficiency assessment for educators and developmental assessments for young children and infants. He has also served as an expert witness in several landmark federal cases on test validity and bias.

A founding member and current first vice president of the Association for the Study of Classical African Civilizations, Hilliard co-developed the popular educational television series, "Free Your Mind, Return to the Source: African Origins." Recently he served with Barbara Sizemore as chief consultant on the "Every Child Can Succeed" television series produced by the Agency for Instructional Technology. Hilliard has also produced videotapes and educational materials on African history through his production company, Waset Education Programs.

A prolific author, Hilliard has written more than 200 research reports, technical papers and articles, and books on testing, ancient African history, teaching strategies, public policy, cultural styles, and child growth and development.

by Mary Lee Barton

Do we really believe that every child can succeed? How does the view that a child's potential is limited affect our ability to reach that child — and inhibit his growth and academic success? These are among the disquieting questions that Asa Hilliard posed to educators attending the McREL fall conference.

An acclaimed educational psychologist and professor of urban education at Georgia State University, Hilliard maintained that the largely unexplored, and in some cases erroneous, beliefs held by many mainstream educators have resulted in ineffective and even damaging educational practice. He spoke candidly about his concerns — that the way we view students and learning affects what we teach, how we teach, and ultimately, student learning. Or, as he said so succinctly about the limitations we impose, "It's not what you know that bothers me; it's what you know that ain't so."

Teaching within the student context

Hilliard told conference attendees about a number of faulty beliefs that have hindered student learning. The first he termed "universalism," or the philosophy that one size fits all. He contended that teachers design curricula as if diversity didn't exist; they ignore or are unaware of how their students' backgrounds — or contexts — shape their learning styles and affect their achievement.

Hilliard discussed the role of context in an article written for the *NAMTA Journal*: "All human beings are embedded in some kind of context. … That's just how people are. That's just where they learn: where they are" (Hilliard, 1996). Furthermore, in a special issue of *Negro Educational Review* he warned that "misunderstanding of cultural behavioral style has been shown to lead to errors in the estimation of a student's or a cultural group's: (1) intellectual potential (the consequences of which — mislabeling, misplacement, and mistreatment of children — are enormous); (2) learned abilities or achievement in academic subjects such as reading; and (3) language abilities" (Hilliard, 1983, 1987).

In his conference presentation, Hilliard cited the Ebonics controversy as a recent example. Most students in the Oakland school district, he said, come from an environment, or context, rich in language derived from several West African dialects. Dr. Ernie A. Smith utilized his knowledge of four African languages to craft a program that would reach this population of students. Nevertheless, the program was ridiculed and eventually rejected, Hilliard contended, because neither the news media covering the debate nor the general public understood the role that context plays in learning and cultural behavioral style.

Ironically, the California State Department of Education published a report by Hilliard in 1976 which addressed the issue of context. In it, he might have been discussing the Ebonics controversy:

Belief and research: Culture, context and dysfunctional paradigms

— Asa G. Hilliard, III

> We do not posit the notion of style as an excuse to explain why some children do not learn in some subjects. In fact, we believe that there is evidence to indicate that any content may be learned by any style user. The question is simply one of how a given style user will approach the task and whether the approach that a given style user uses is compatible with that of the teacher or the institution which provides instruction.

In other works, Hilliard has testified about the exciting results that can occur when teachers and researchers recognize and work with context. When researchers such as Margaret Donaldson took the time required to "decode" children's context and to present tasks within that context, they revealed that "children were fully capable of just doing marvelous kinds of things" (Hilliard, 1996).

Not surprisingly, Hilliard said he prefers observation over research's traditional pre- and post-testing and surveys as the best means of gathering information about people. Observation, he said, allows one to discern the number and types of variables that impact learning in a particular context. For example, observation of infants and small children has shown they are capable of processing information at a much more complex and abstract level than other forms of research previously had shown them to be.

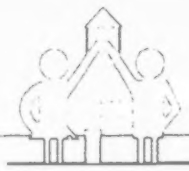
What is intelligence?

A second erroneous belief held by many educators, Hilliard said, is that intelligence is a definable, measurable, static entity. First, he pointed out, not even psychometric experts themselves can agree on a common definition or theory of intelligence. He noted that at a 1989 summit held in Melbourne, Australia, top psychologists from 14 countries gathered to discuss intelligence and its measurement. After lengthy discussions, these experts were unable to agree on a consistent, general theory of intelligence.

In addition, Hilliard declared, intelligence cannot be measured accurately. He recounted a conversation with renowned MIT researchers Jerrold Zacharias and Judith Schwartz in which Zacharias dismissed attempts by some psychologists to measure intelligence. According to Zacharias, neither the instruments nor quantification procedures used by IQ psychometrists could produce accurate, scientific results.

As Hilliard wrote in the *Journal of Black Psychology*, "psychological scientists have not yet measured intelligence, and … whatever the results of IQ testing are, they should not be treated as if they validate a scientific description of intelligence." Moreover, Hilliard argued,

> the mental measurement of intelligence is in no way a prerequisite for present success in school. No body of data shows that any use of traditional IQ or mental measurement is tied to valid teaching and learning. Therefore, IQ measurement is a professionally meaningless ritual, a ritual with unnecessarily harmful consequences, that saps professional thought and action in a negative way, causing professionals to overlook successful strategies and



approaches in education. It is a ritual that shapes student self-image in a negative way (Hilliard, 1994).

Hilliard told his audience that educators make the mistake of thinking intelligence is a fixed, unchangeable entity. This viewpoint is based on the belief that one's IQ is some fixed quantity that cannot grow. Those who hold this erroneous belief take no time to nurture the learner because, Hilliard said, they do not believe that such nurturing can have any effect on learning. Consequently, teachers spend more time focusing on measuring capacity and on standardized test scores than on developing curricula that help students grow. Hilliard said he fears this practice can lead to an overreliance on test scores as indicators of future success. He pointed out that while some educators use results from such tests as the SAT and ACT to predict student success, these tests only show the degree to which students have been exposed to material on the exams.

> "It is not the learning style of the child that prevents the child from learning; it is the perception by the teacher of the child's style as a sign of incapacity that causes the teacher to reduce the quality of instruction offered." — *Asa G. Hilliard, III*

All children learn

A third misconception that Hilliard attacked is the doubt society has about the ability of all children to succeed. He questioned why, if educators truly embrace the belief that all children can succeed, there was a need to create a slogan stating that fact. This doubt undermines quality education because "you always get into trouble when you start to say what people cannot do" (Hilliard, 1996).

"The literature on teacher expectations is clear," Hilliard wrote in the *Journal of Negro Education*.

> The images that teachers and others hold about children and their potential have a major influence on the use by teachers of their full range of processing skills. … It is not the learning style of the child that prevents the child from learning; it is the perception by the teacher of the child's style as a sign of incapacity that causes the teacher to reduce the quality of instruction offered (Hilliard, 1992).

Hilliard told his audience that this misconception about student capacity has led many to question whether schools can improve learning. And yet, he pointed out, there are many schools that do succeed regardless of what IQ tests and popular opinion might predict. Hilliard described the success of the Vann School in Pittsburgh, which despite being in one of the lowest socioeconomic areas in the city has consistently displayed high achievement.

He described similar successes at the Kipp Academy schools in the Bronx, N.Y., and Houston, Texas. These schools have developed a curriculum that is rigorous and demanding. The school day is longer than in other schools, and students are expected to work hard to succeed. Since their inauguration, these schools have posted gains in student achievement of over 50 percent on standardized tests. Hilliard questioned how such tremendous gains are possible, if IQ is a fixed, unchanging entity. Teachers at these schools did not focus on what IQ tests or context indicated about student success. Hilliard urged participants to stop examining why students and schools fail and study instead how to work within each context to maximize success.

Politics versus professionalism

Hilliard is especially concerned with how education researchers confuse political issues with professional ones. The standards movement, for example, is not about pedagogy, said Hilliard; instead, it is "a cheap way for

liberals and conservatives not to do anything about education." Educators "beaver away" or waste time developing standards against which to measure students, when they should be working on nurturing students' growth. He compared the standards movement to the story about rearing an elephant: to help an elephant grow, you don't keep weighing it over and over — you feed and nurture it.

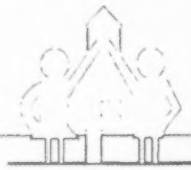
Confusing politics with professionalism, Hilliard said, can also mislead education researchers into assigning professional motives to people who actually have a political agenda. Hilliard expressed concern over professional credence being given to the work of Herrnstein and Murray, authors of *The Bell Curve*, who argue that "people in the bottom quartile of intelligence are becoming not just increasingly expendable in economic terms, but will, sometime in the not-too-distant future, become a net drag." Hilliard said he believes that assigning this kind of political argument a professional motive can sabotage education. As he wrote in *The NAMTA Journal*, "You can't appeal to [children's intellect] if you don't think they have it. If you're a 'bell curve' thinker, you think that a quarter of the people don't even have intellect and most of the rest of the people have an impaired intellect. So, naturally, you don't organize to nurture what's not there" (Hilliard, 1994).

A call for change

Hilliard has called for a fundamental paradigm shift in education. In his 1994 article for the *Journal of Black Psychology*, he declared, "The essence of the paradigm shift is that we view the human intelligence as modifiable, as growing … I believe we have been stuck in the old paradigm because of politics, not because of professionalism" (Hilliard, 1994).

Perhaps the biggest shift that Hilliard has supported is adding a fourth domain to those Bloom and others identified in *The Taxonomy of Educational Objectives*. "THE domain — the spiritual domain — was left out," he told conference participants. Consequently, the nation's biggest educational initiatives, like Goals 2000, are devoid of art, music, and philosophy — all of which Hilliard believes are needed for students to express their innately spiritual selves.

Hilliard exhorted conference participants to carefully examine how their belief systems are influencing the quality of education. He cautioned participants against "beavering away," focusing on that which is not truly significant and creating structures that do not serve children. Instead, he invited educators to help children by viewing them as unique, growing, spiritual beings that, with careful nurture, will achieve their true potential.



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David N. Perkins

Biographical sketch

David Perkins received his doctorate in mathematics and artificial intelligence from the Massachusetts Institute of Technology in 1970.

A founding member of Project Zero at the Harvard Graduate School of Education, Perkins has served since 1971 as co-director of the project. Initially, the project addressed the psychology and philosophy of education in the arts. Members later broadened its focus to encompass cognitive development and cognitive skills in both humanistic and scientific domains.

An entertaining and thought-provoking presenter, Perkins offers educators new perspectives on the roots of intelligence. He is involved with what he calls the new science of "learnable intelligence or mindware," because he believes that better thinking depends on mental tools for organizing our thoughts.

Perkins has published more than 120 articles in books and referenced journals during the past 25 years. He has authored and/or edited several books, the most recent of which is *Outsmarting IQ: The Emerging Science of Learnable Intelligence.*

Perkins also has developed a wide array of curriculum materials. He participated in the design and testing of a course to teach thinking skills at the seventh-grade level in Venezuela for that country's Intelligence Project. Published in English in 1986 under the title "Odyssey: A Curriculum for Thinking," the course proved to be highly effective and is now used in a number of middle schools in the United States. Recent curriculum materials include the "Knowledge as Design" video and workbook, and "Thinking Connections: Learning to Think and Thinking to Learn." The latter work, developed with several co-authors, provides elementary school teachers with a systematic approach to integrating key thinking skills across several disciplines.

Perkins has served as principal or co-principal investigator of more than 15 research projects during the past 20 years. He is a consultant to educational groups throughout the world and a standing member of the organizing committee for the International Conference on Thinking.

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by Diane McIntyre Wilber

When we think of teaching and learning, whether it's in a school or an organization, we naturally assume that, at least somewhere in the process, understanding is involved. But just what is understanding? And how do we cultivate it?

For the past 20 years, David Perkins, professor at Harvard University's Graduate School of Education, has been developing a model of "understanding as performance," and an approach to teaching and learning for understanding that helps to inform classroom practice. He and his colleagues also are exploring what implications this model has for organizational learning.

At the McREL conference, Perkins challenged participants to think about what they believe understanding to be by posing three questions:

1. What's something you understand really well?
2. How did you come to understand it?
3. How do you know you understand this thing?

At Perkins' request, audience members gathered into small groups and compared answers. A subsequent show of hands indicated participants, by a nearly two-to-one majority, had a non-academic subject in mind when they responded to Question 1. For Question 2, nearly all in the roughly 250-member audience said they achieved understanding by active involvement. On Question 3, respondents totaling approximately 80 percent of the audience indicated they knew they understood when they could perform a specific activity related to the subject. This group activity, Perkins said, was an experiment in "folk psychology," demonstrating the core issue of the nature of understanding.

Perkins' model of understanding

Perkins' model is based on the premise that understanding is performance or action.

"Understanding something is a matter of being able to act with respect to it in flexible, thoughtful ways," he said. "When you understand something, your knowledge is actionable — not just in a rote way, but in a generative or creative way."

To help clarify his model for the audience, Perkins explored three myths about understanding:

Myth #1: understanding is knowledge

Perkins asked participants how many knew Albert Einstein's famous equation, $E=mc^2$. Most audience members raised their hands. He then asked how many understood the equation. Very few ventured a positive reply.

Declaring the "understanding is knowledge" concept "not very plausible," Perkins said many students nevertheless believe it to be true. "It's too bad kids believe that," he said, "because it's an attitude that gets in the way of deeper learning."

Myth #2: understanding is perception

This belief is an integral part of our casual discourse, Perkins said. "We say, 'We see it,' or 'I see what you mean.'" He acknowledged that, at times, understanding can be perception — as in moments of enlightenment. But in most experiences of understanding, "we have to fight for it, work it out over time, analyze, reflect and come back to it," he said.

This concept also is often believed by students, Perkins said. "Some kids think that you either get it or you don't," he said, "and if you don't, all the looking in the world isn't going to lead you to see it. Such students have a self-defeating belief about understanding."

Learning for understanding in individuals and organizations
— David Perkins

"Understanding something is a matter of being able to act with respect to it in flexible, thoughtful ways . . ."
— David Perkins

Myth #3: understanding is possession

The conception of understanding as possession also has become part of our everyday language, Perkins said. "We sometimes say, 'I get it' when we understand it," he said. By further explanation, Perkins said this myth means, "I have an entity in my mind; I have taken possession of this mental model."

But having the right mental model of understanding is not enough, he said. "It leaves out the action component. It doesn't do you any good unless you can operate on the mental model, have access to it, and put it through its paces."

The nature of understanding

"Any way you look at it, you need a performance conception of understanding," Perkins said. "Understanding and intelligent, thoughtful action are very much the same thing."

Implications for teaching and learning

"If understanding is performance," Perkins said, "then youngsters who are learning to understand something ought to spend most of their time performing — thinking, reasoning, extrapolating, building, etc. Instruction should be organized so that's the way learners spend most of their time."

To illustrate his point, he used the example of a person learning to ski. Rather than a beginning skier spending all her time listening to someone talk about skiing, watching movies about skiing, or waxing her skis, she should actually be trying to ski. "The central activity should be efforts to ski, preferably efforts that involve a little intelligent coaching," Perkins said.

Organizing instruction to teach for understanding

Perkins' model of "understanding as performance" includes a four-part framework for individual understanding and its classroom uses. The framework, and Perkins' example questions, include

1. *Teach from a generative topic.* Topics should be chosen for their generativity relative to subject matter, teacher and learner. What do you really want your students to understand?
2. *Set goals for understanding.* These goals should be public statements that specify what is to be understood about a topic. What do you want your students to understand and appreciate?
3. *Set performances for understanding.* These performances or activities should display and advance the learners' understanding. What kinds of mindful, challenging activities can learners do to help them build their own understandings?
4. *Do ongoing assessment.* Assessment practices should be of various kinds that provide learners with informative feedback early and often throughout the learning process. How will the teacher or learner know he or she understands?

Understanding for organizations

Perkins' latest research and literature reviews focus on organizational learning, with an emphasis on understanding. He told the audience he calls this research area "understanding for organizations," and somewhat mischievously pointed out its acronym —UFO.

Perkins described his work on the subject of organizational understanding at the Universidad de Bogota Jorge Tadeo Lozano, a university in Bogota, Colombia. He and other colleagues are conducting a multiyear research project there involving institutional change, entitled "Understanding for Organizations: A Study of Organizational Inquiry."

Perkins' work in this area centers on what organizational learning for understanding means,

regardless of whether an organization is large or small. Two of the key ideas are as follows:

1. Understanding in an organization depends upon what individuals within the organization understand about it, how it works and how individuals fit into it.

2. Organizations can also learn for understanding as entities.

Perkins introduced this topic by telling conference participants about two administrators he encountered many years ago at the financial office of the Harvard Graduate School of Education. (Both are now retired.) Both individuals had power, and on various occasions he approached each of them with his needs. One, whom Perkins dubbed an "inhibitor," often said, "We can't do that because of policy." Perkins said with this administrator he had to argue for his requests, then only got what he needed about 60 percent of the time. The inhibitor's point of view, he said, was "you are here for the organization."

"The inhibitor has stereotyped functioning and has to be pushed and challenged," Perkins concluded.

The other, whom Perkins called a "facilitator," offered much more positive responses, saying, "We'll figure out how to do it if we can." The facilitator is ready to solve problems, Perkins said, and takes the view, "the organization is here for you." When asked by Perkins for a show of hands, most audience members acknowledged they, too, had encountered both inhibitors and facilitators in their business interactions.

Direct versus symbolic conduct

The key, Perkins said, is to know the difference between symbolic and direct conduct. He defines direct conduct as an immediate response while symbolic conduct is the side messages from displayed attitudes. "Often one of the problems in organizations is that things are done only for direct conduct without regard for symbolic conduct," he said.

To illustrate the difference, Perkins described an experience he had with an assisted care facility where his 95-year-old mother was residing. When he arrived to visit her, a nurse told him that his mother had fallen, but said fortunately she was able to get up on her own. For various reasons, the facility's personnel were discouraged from helping up residents who fell. They could only stand by and give downed residents advice on how to get up on their own. If his mother hadn't succeeded in getting up on her own, the nurse explained, facility personnel would have had to call the fire department.

The direct conduct in this case demonstrates the facility staff members don't think well about the problem, Perkins said. There are many practical ways one might help an elderly person up safely. Meanwhile, the symbolic conduct signals that the organization is more concerned about insurance than people.

Organizational "hot spots"

Within organizational behavior are places that tend to be particularly sensitive and have symbolic ramifications, Perkins said. One of these "hot spots" often is decision-making — how decisions are made and by whom. "If decisions are made collectively, then it sends a message of cohesiveness and of trust," he said. "If not, if they are made autocratically, then that sends the opposite message."

Perkins described two organizations he encountered, both in the business of developing learning products. Each had a different organizational culture, he said. At one, which he called ImageTech, everyone waited for the boss to speak first. "Usually decisions were made in line with the boss's view; there was lots of

checking with superiors," Perkins said. At ImageTech, the process captured only the boss's thinking and sent messages about a lack of trust.

"Are there understandings that you have that you could act on but don't?"
— David Perkins

At the other organization, which he called VisionTech, everyone spoke up in free-for-all discussions. On the downside, conversations were poorly managed and not orderly, unlike those at ImageTech. "But there was a collective spirit," Perkins said. "There was less checking with superiors; people had the authority to make their own decisions." This sent a message of trust and capitalized on everyone's thinking, he concluded.

The culture of conversations

Another key to understanding in organizations is the culture of conversations, Perkins said. The nature of conversations varies within organizations and between organizations — a notion, he said, that comes from one of his colleagues, David Wilson. "We are looking at what kind of a culture is implicit in the way people have conversations with one another around a meeting table, in the hall, wherever," he said.

While this research is still in progress, Wilson and Perkins have identified markers in conversations that reflect a negative or positive culture. These markers are specific to organizations and are indicative of collective attributes of the group, rather than the individual. He listed them as follows:

Markers of a negative culture of conversation:

1. Dismissal of ideas.
2. Easy acceptance of ideas, because ideas are not processed.
3. Bashing of ideas.
4. Ideas scattered all over the board; there is no coming to cohesion.

Markers of a positive culture of conversation:

1. Deliberation occurs.
2. Listening occurs.
3. Ideas are "unpacked"; i.e., they are taken out and examined.
4. Brainstorming is common.
5. Ideas are consolidated and integrated.

Will you act?

Perkins summarized his presentation by challenging conference participants to question their own understanding as performance. Often we have understanding but don't act on it, he said. "Understanding means, 'I can act,' but not, 'I will act,'" he explained. "Are there understandings that you have that you could act on but don't?," he asked participants. "And why?"

"What kind of understanding goes beyond that," he continued, "and brings action with it?" Perkins concluded that perhaps understanding alone isn't comprehensive enough and doesn't take on enough aspects of life. In the end, understanding and action need to be fused.

With that in mind, Perkins left the audience to contemplate a quote from a poem by William Butler Yates …

Oh, brightening glance,
How can we tell the dancer from the dance?

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Carl D. Glickman

Biographical sketch

In 1997, Carl Glickman was awarded a University Professorship, the highest faculty career award granted by the University of Georgia, for bringing "stature and distinction" to that institution. He was the first faculty member in education to be so honored and one of only 13 to receive the award in the school's history.

Glickman teaches both graduate and undergraduate courses at the university, where he has convened and helped develop a new Ph.D. disciplinary and interdisciplinary program in Social Foundations of Education.

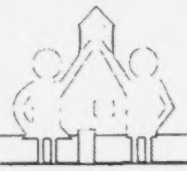
Glickman began his career as an elementary teacher, has served as principal of award-winning schools, and has led a number of prestigious research projects. He received his bachelor's degree in psychology from Colby College, Maine, a master's degree in education from Hampton Institute in Virginia and a doctorate in educational leadership from the University of Virginia.

Glickman provides editorial service for several education journals and leadership in many professional organizations. Currently he serves as invited scholar to the American Association of State Colleges and Universities, which represents 425 public colleges and universities. In that role, he is developing a position paper on "The Role of Public Higher Education in Achieving the Common Good."

Glickman's work has garnered recognition throughout numerous political and economic swings in education. As chair of Georgia's Program for School Improvement, he has founded and headed ongoing university/public school collaborations. These collaborations link education and democracy through shared governance, action research, and school-based curricular and instructional innovations. One of these initiatives, the League of Professional Schools, involves more than 130 elementary, middle and secondary schools throughout the United States. These efforts have been called the most outstanding education collaborations in the nation by the National Business Higher Education Forum, the National Diffusion Network of the U.S. Department of Education, and the Merrow Groups of the U.S. Public Broadcasting System.

Glickman has had an impact on the lives of educators internationally as consultant to more than 100 school districts, universities and professional organizations in 35 states, six provinces of Canada and several foreign countries. During the past 10 years, he has presented keynote addresses for education organizations throughout the United States, Canada, Western Europe and the Middle East.

He has authored 11 books and numerous articles, monographs and essays. His newest book, *Revolutionizing America's Schools*, is a collection of personal essays on democracy, education and school change.



by Diane McIntyre Wilber

Revolutionizing America's schools: democracy, powerful learning and the professional imperative

— Carl Glickman

"Of all the civil rights for which the world has struggled, the right to learn is indeed the most fundamental." — W.E.B. Du Bois

Carl Glickman believes deeply in the underlying definition of democracy and what it means for education, he told his audience at the McREL conference. Although he recognizes not everyone would agree, Glickman, a University of Georgia professor of education and chair of the Program for School Improvement, described the concept of "democracy as education," or democracy integrated into the educational process itself. Du Bois was one of many great writers whose words Glickman evoked as he passionately conveyed his beliefs to his audience of educators.

He began his presentation by asking participants to respond, with four or five short descriptors, to two questions: How would you describe a really good democratic process for making instructional decisions? How would you describe a really lousy learning environment?

> "If people lose who they are and why they're there, if they don't revisit their ceremony, then the people are no more." — *Leslie Marmon Silko*

Trying to make his presentation in the large conference room as personal and interactive as possible, Glickman asked participants to gather into groups of two or three to discuss what relationship they could find between their responses to the two questions. Descending from the stage and roaming among the audience, Glickman figuratively donned his college professor hat. "I'm checking answers," he joked.

Audience members soon reported that the descriptors they used for Question 1 were the inverse, or opposite, of those used in their responses to the second question.

"Hold that connection," Glickman said. "It is a fundamental one when it comes to education and I think a connection that often is overlooked or ignored in the changes or sustaining of educational efforts in schools."

The ceremony of American education

Next Glickman asked participants to ponder another question — what is the ceremony of American education? He called on the words of Leslie Marmon Silko, a Native American author, who wrote, "If people lose who they are and why they're there, if they don't revisit their ceremony, then the people are no more."

Referring to the Declaration of Independence as the American ceremony of democracy, Glickman said you can't separate American education from the ideas or principles of how Americans would govern themselves.

"The belief in democracy in the role of education makes the uniqueness and the sanctity of each and every one of you and every one of your students possible," he said. "There is a direct connection, a direct application in terms of your work in schools, the kind of curriculum and instruction that goes on, the kind of change that either brings that ceremony to life or lets it die."

The central mission of public education

Glickman stressed that when speaking of democracy as education, he is not referring to simply the disciplines of social studies or civics. "Most people's understanding of democracy is that it's a political system of governance," he explained. In contrast, Glickman believes governance in itself was not the total concept of democracy at the time of the American Revolution. "It was about a way of life among people that could only occur if people participated in information, the general diffusion of knowledge, the pursuit of truth and the freedom of expression," he said.

Having tendered this definition of democracy, Glickman asked audience members to discuss what they believed to be the fundamental values of education. He outlined what he called "the central mission" of public schools:

- that all students are created equal;
- that they are endowed by their creator with certain inalienable rights;
- that among these rights are an education that will accord them life, liberty and the pursuit of happiness; and,
- that whenever any public school becomes destructive in preparing students for these ends, it is the right of the people to alter or abolish it.

"The main goal of public education is to prepare students to engage productively as valued and valuable citizens of a democratic society," he said. "If we take seriously the goal for why we exist, then kids will learn in profoundly better and different ways than they've ever learned before."

A declining belief in democracy and its impact on education

Glickman cited several statistics from Harvard political scientist Robert Putnam regarding the decline of Americans' participation in democracy. For example, over the past 40 years attendance has dropped 40 percent at town meetings and school board meetings, and participation in political parties is down by 56 percent. The last presidential election attracted the lowest voter turnout since 1920. What's more, Glickman added, a recent study of college students showed that more than 75 percent don't believe they can make a difference in creating a better society, although a majority think they'll do fine in their material lives.

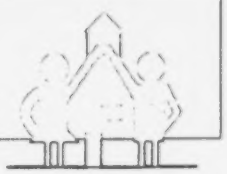
"If there's a calamity about this, it's not that there's a crisis in public education," Glickman said, "but a crisis in the abandonment of the belief in democracy.

"If we don't believe in what public education is fundamentally about," he continued, "if we don't create the kinds of learning environments that engage students in ways that they understand these connections, then not only do we lose a belief in democracy, we lose whole generations of future citizens. And that has economic effects, social effects and political effects."

The practice of democracy in schools

Glickman said there is often a discrepancy between what educators say they believe about democracy as education and what they practice. "Public schools are the only institutions with the explicit purpose to prepare students for valued and valuable participation in a democracy," he said. "Yet these institutions themselves do not believe in the practice of democracy."

While acknowledging that educators are not unanimous in their beliefs about organizational governance, Glickman said many studies suggest a majority of educators believe decisions are best made through authority, hierarchy and superior



control. Those studies also reflect the opinion that the idea of democracy as engagement of students is really not an educator's job.

"It's as if they're telling their students, 'I want you to believe in democracy, in the value of education and what the power of democracy can be. But every day, you can watch me as an adult and see that I don't believe that in my own practice,'" Glickman marveled. "Incredible!"

Characteristics of democratic learning

Glickman quickly summarized work he's spearheaded for the past 15 years, including his association with the League of Professional Schools, an award-winning initiative that focuses on school renewal through democratic education. In addition to university and public school collaborations, he referred to empirical data and his study of cultural and ancestral roots to learning. From all this, Glickman has culled a list of characteristics showing what he believes democratic learning to be — and what it is not.

Warning audience members to put on their thinking caps, he declared, "This is cerebral. It's very applicable but it's cerebral, so this is where I need you to be at your very best."

What democratic learning is, what it isn't

"If you want to see powerful teaching and learning, kids doing extraordinarily well academically, then this is what you're going to see going on in schools and in classrooms," Glickman said. "You may not see this every single moment, but you will see there's always the intent to do more of this:"

- Students actively working with ideas
- Students having choices
- Students sharing their learning
- Students increasing their self-responsibilities
- Students demonstrating their learning to someone aside from the teacher
- Students working individually and collectively

"What you're not going to see in democratic learning — and I need to be very, very clear on this — you're not going to see students deciding for themselves what to do, when to do it, and if they want to do anything," Glickman explained. "That is not what I'm talking about. Democratic learning is not opening up the door and saying to students, 'Go to it.'"

Glickman continued with a list of "not-seens:"

- You're not going to see an absence of kids learning basic skills.
- You're not going to see an absence of disciplines. Although studies may be interdisciplinary, there will not be an absence of disciplines.
- You're not going to see classrooms where students are all taught the same way at the same moment.
- You're not going to see classrooms where students sit and listen passively for extended periods of time.
- You're not going to see classrooms and schools where students are labeled, categorized and limited in educational opportunities.

"Democratic learning is not setting a category for a student that then becomes the expectation," Glickman said. "At democratic schools, there is no limitation. Every kid is challenged to go as far as he or she possibly can."

Judgment calls in democratic learning

"The reason educators are so important is that there have to be judgment calls," Glickman said. "Democracy is not learned in abdication. Content is not learned in abdication.

"Public schools are the only institutions with the explicit purpose to prepare students for valued and valuable participation in a democracy. Yet these institutions themselves do not believe in the practice of democracy."
— Carl Glickman

"Carl Glickman was very helpful. He gave us more than just rhetoric and theory. He gave each of us something to improve today and tomorrow."
— conference participant

"So the question always becomes, 'What's the judgment call in terms of how much choice, how much responsibility, how much participation, how much activity, how much demonstration, can all our students take? Can all our faculty take? Can all our citizens take?'"

Glickman described his application of democratic learning when he teaches university classes. "It's harder for me to demand of my own students at the University — that they're going to be engaged, participating, connected — than it is for them to sit and take notes," he said. "Academically, they've always been very good at taking notes and giving back what I want.

"It's easier for me to give to them what they want for the moment," he admitted. "There's less preparation on my part; there's less thinking on my part. It lets them slide, and it lets me slide. So what I have to do is challenge them to challenge me."

He added that he must always balance how much choice he gives his students. "I always know if I've given them too much choice," he said. "I know it real quickly because things get chaotic.

"Then what I need to do, what everyone needs to do in their own schools, is say, 'Hey, we need to back up a little bit. We need to quiet things down, to figure out what's working and what's not working.' But then we don't stop. And that's the issue on sustaining education reform around democracy as the fundamental value."

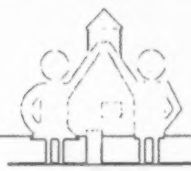
A vision for education

Glickman charged that we have predicated reform on a vision of doom — the belief that our schools are falling apart and our students are poorly educated. "The reality is, our kids know as much, if not more, than they ever knew before," he said. "We're educating much greater numbers of kids than we ever educated before. The data says that, across the board, American kids are doing as well, if not better, than their parents did."

Still, Glickman warned, we're not doing well enough. "A democracy is predicated on everyone being educated," he said. "So what we don't need is another vision of doom, but a vision that inspires us — and it's a core belief of what the role of education is.

"We must always be rethinking our teaching and learning towards democracy," he explained. "How do we learn content through greater choice? How do we learn skills through greater participation? How does our staff development help equip us to continue to increase this choice? How do we revise our curriculum so that it has greater connections, greater application?

"We must insist upon this to give our children the fairness of a start that will equip them, a chance to judge what the world might be," he challenged. "Not what it is, but what it might be."



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John Kuglin

Biographical sketch

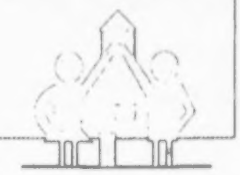
John Kuglin's unique professional experience makes him one of the most sought-after speakers nationally on the uses of technology in education. He brings to the podium 25 years of experience in education, telecommunications, educational television program production and computer technology.

At the time of the McREL fall conference, Kuglin was senior director of technology at McREL. There he began the design of a state-of-the-art technology laboratory that will be used to integrate technology into McREL's nationally known work in standards and assessment. He has since accepted a position as vice president of distributed learning for ACTV. Although ACTV is based in New York, Kuglin will be working from a Denver office.

Kuglin began his career as a teacher in Missoula, Mont., later becoming that district's first technology coordinator. There he developed technology planning and implementation for more than 6,000 students and 400 educators. He and his students were featured on CNN demonstrating their innovative uses of technology in the classroom. *USA Today* selected Kuglin as one of 10 teachers nationwide featured in a booklet called "Power Teaching." He also was asked to testify before the U.S. Senate Committee on Commerce, Science and Transportation about media technology in the classroom and was selected to serve as a charter member of the Montana Telecommunications Advisory Council.

Kuglin left the Missoula district to become the founding director of the Sparkman Center for Educational Technology for Telecommunications Inc. (TCI). He soon was promoted to vice president of training for ETC (Education, Training and Communications), a wholly owned education subsidiary of TCI. In this role, Kuglin developed and directed three nationally known technology training centers. These facilities offer customized training to thousands of teachers nationwide.

Still a teacher at heart, Kuglin's "classroom" has included the well-known Learning Channel on television. He co-wrote and served as on-air host for a 10-part technology series on the Learning Channel called "Best Seat in the Class." Kuglin also has been instrumental in numerous other nationally televised teacher in-service programs.



by Diane McIntyre Wilber

Connecting the information classroom with the digital tool set

— John Kuglin

To some, technology in education is viewed as just so many "bells and whistles" which are changing so rapidly no one can keep up. But to John Kuglin, former senior director of technology at McREL and a classroom teacher for 22 years, digital advances are simply a new array of teaching tools. In fact, Kuglin told conference participants, the "digital tool set" is so dynamic it can engage even the most hard-to-reach students. What's more, he declared, many of the latest technological developments are not only easily incorporated into curricula, but are increasingly affordable — even for educators.

The last of the keynoters at McREL's fall conference, Kuglin enhanced his presentation with computer images projected onto a large screen. Connected to the Internet via satellite, the small laptop computer called up an impressive collection of learning technologies at Kuglin's command. Throughout his demonstration, Kuglin spoke of his personal commitment for sharing with educators the power of technology in learning.

"Educational improvement will not come from trying to fit technology into an industrial age model of schooling," he said. "It's time to move our students away from the [role of] traditional consumers of knowledge and into a constructivist approach where students take charge of their own learning and become producers of knowledge preparing for life in the information age."

A brief history of technological advances

Kuglin began his history lesson by entertaining his audience with a few quotes revealing how some purveyors of technology have underestimated the appeal of technological advances:

- "Who in the hell wants to hear actors talk?" — Harry Warner, Warner Brothers, 1927
- "I think there is a world market for about five computers." — Thomas J. Watson, chairman of IBM, 1943
- "There is no reason for any individual to have a computer in their home." — Ken Olson, president of Digital Corporation, 1977

"It's important to see where we have been so we can understand where we are today," Kuglin said, "and, more importantly, where we are going in the future." Starting with a game developed in 1974, he briefly described several technological advances and the impacts they had on the world:

The Oregon Trail — 1974

The first digital teaching tool was a mainframe-based game called "The Oregon Trail," Kuglin said. It began as a text-only simulation of America's westward wagon journeys.

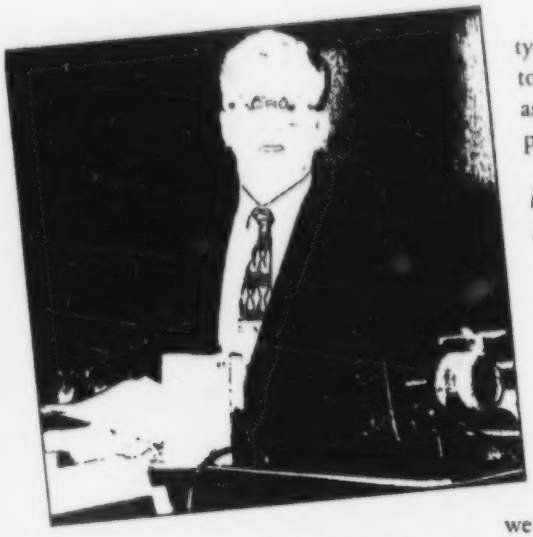
Apple II Computer — 1976

Steve Wozniak and Steven Jobs began the Apple Corporation in a garage, unveiling a computer without a keyboard, case, sound or graphics. "But nevertheless it was the start of something," Kuglin said. "Remember what IBM was saying … that there would only be a need for about five big mainframes throughout the country."

Word Processing — 1977

Kuglin showed the audience a list of word processing applications that began appearing on the market, including Applewriter in 1977, Bank Street Writer in 1982, and Appleworks in 1983. "Look at all the nodding heads," he said, as participants reacted to the list.

Reminding his audience of conditions before word processing, Kuglin said, "I remember that so fondly. Those of us who were in school at the time had assignments to do 10-page reports that couldn't have any errors. Remember when you got down to that last paragraph and the beads of sweat started forming because you knew you were going to hit the wrong key on the



typewriter? Computers just totally eliminated all that, as well as the draft process."

Dot Matrix Printers — 1978

Epson Corporation unveiled the world's first dot matrix printer in 1978 — a significant innovation because it allowed for graphic as well as text output. "So for the very first time we had text and graphics on the page that we created, and it was unbelievable," Kuglin said. "In fact, we all sat around the computer and said, 'It doesn't get better than this.'"

Disk Operating Systems (DOS) — 1981-1982

Kuglin told his audience that IBM was the first company to introduce a DOS-based computer, in 1981. He said the company assembled the machine and entered into an agreement with someone else to write the instructions (or the operating system) for running it. Kuglin asked audience members if they could guess this individual's name, which is now a household word. The name, of course, is Bill Gates.

In June of 1982, Microsoft Corporation released MS-DOS Version 1.1, which was applicable for both IBM computers and compatibles.

"It's amazing, but I still get asked from schools, 'Should we buy a computer with a CD-ROM in it or not?' That's like buying a new car without tires."
— John Kuglin

The Mouse — 1983

"You know, we don't think about the mouse, but in 1983 it first came out on a computer that Apple introduced called the Lisa," Kuglin recalled. He described the Lisa as having a graphical user interface with icons, pull-down menus and windows. Users interacted with it by rolling around a small, hand-held device called a mouse and clicking on commands.

Kuglin told the audience about a computer show he attended at the time, held in a large conference room lined with vendor booths. He remembers most of the approximately 200 guests squeezed into one corner in front of the Apple display. "We couldn't believe that we were controlling a computer with one of those things called a mouse," he said. "The Lisa was a miserable flop, but it did lay the groundwork for a computer that came shortly thereafter called the Macintosh."

The Print Shop — 1984

The Print Shop was the first creativity package that allowed even young children to produce personalized cards, banners and stationary. Kuglin recalled classroom teachers using it to print signs and posters. "Remember for those of us in the classroom, it was a quick way to do bulletin boards," he said. "What a godsend we thought that was!"

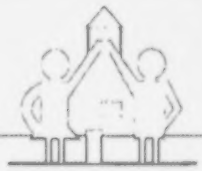
Microsoft Windows — 1985

Bill Gates developed a graphical operating environment aimed at making MS-DOS computers user-friendly. The Microsoft Windows operating system featured Macintosh-like icons, menus and dialogue boxes. "Bill started to take a look at the Macintosh in 1985 and say, 'That graphical user interface is interesting; I think I'll create my own,'" Kuglin explained.

CD-ROM — 1988

After the emergence of audio compact discs (CDs), computer-compatible CDs soon followed. Their 600-megabyte storage capacity spurred the development of a variety of multimedia applications.

"It's amazing, but I still get asked from schools, 'Should we buy a computer with a CD-ROM in it or not?'" Kuglin said. "That's like buying a new car without tires."



World Wide Web — 1994

Kuglin dubbed the Internet a well-kept secret until late 1994 when Tim Berners-Lee invented the graphically rich World Wide Web, unveiled at the time as "the Internet for the rest of us." Berners-Lee defined how web sites would be kept anchored and separated and the means by which material could be put on the sites.

"When we see some of the kinds of things that are going on the Internet in terms of audio streaming and video streaming and some of the fantastic learning capabilities that are out there, I want you to remember that 1994 was when it started," Kuglin told participants. "Because when you ask me questions like, 'When is this going to happen?' I can only point you backwards and say, 'We started in 1994 and now it's only 1997.'"

Moore's Law

Kuglin elaborated on the incredible pace at which technology is moving, explaining a projection called Moore's Law made about 20 years ago by Gordon Moore, co-founder of the Intel Corporation. Moore said that the power of computer technology will double approximately every 18 months, while the price of technology will decline at the same rate. "That means you can have a computer in 10 years that is 100 times more powerful for one-tenth of the cost," Kuglin said.

> The power of computer technology will double approximately every 18 months, while the price of technology will decline at the same rate.
>
> — *Moore's Law*

He illustrated the point with two examples. First, he compared the very first computer ever created with a small calculator of today. The first computer weighed about 70 tons and filled a room whose floor space measured 30 by 70 feet. "The amount of power to run that computer for one minute would power your entire household for one year right now," Kuglin told the audience. "Yet the power of that computer is right here in this little, hand-held calculator."

Kuglin then referred to one of today's popular home video games, Nintendo 64, which sells for about $150. "The processing power that goes into that would have cost $14 million just 10 years ago," Kuglin said. "That's Moore's Law."

The information explosion

Kuglin attributed the "information explosion" (the fast pace at which technology is advancing) to three factors: speed, storage and transmission.

Speed

Kuglin explained that computer processing units determine the speed of computers, likening their speed to that of engines in cars traveling down an interstate highway.

"If you have a 286 or a 386 in your office, think of it this way," he told participants. "You're on I-70 driving back to Denver. The speed you are limited to is according to the size of your engine. So now if you have an engine that is a 286 or a 386, you're clipping along I-70 at about 15 miles per hour."

Someone "driving" a newer machine, at 166 Megahertz (MHz), Kuglin continued, would pass you in the next lane at 166 miles per hour. That illustration indicates how much faster the newer machine could process information, he said.

"But wait!" he declared. "That's yesterday's technology. Because on the forefront right now are 200-MHz machines, and even 300-MHz machines, that are predicted to cost below $2,000 within six months. So you're driving down your lane at 15 miles per hour and the guy in the third lane goes by at 300 miles per hour and you start to get some sense of the speed at which computers are evolving."

"... It's important to understand technology. It is going to be here no matter what walk of life you're in. It will impact you in some way and it will not go away."
— John Kuglin

Storage

Kuglin said another factor responsible for the information explosion is the increasing capacity for information storage. He held up a 5¼-inch floppy disk, calling it the standby of computer users for years. Then he displayed a 3½-inch floppy disk, explaining that one of the smaller, 3½-inch disks can hold all the information on about 16 of the larger, 5¼-inch disks.

The next evolution in storage, Kuglin said, was the CD-ROM, similar in appearance to an audio compact disk. He said although one CD-ROM can hold all the information on about 400 3½-inch disks, the industry hasn't effectively mastered the ability to lay down information on CD-ROMs and has never developed a large market for them.

But storage is still evolving, Kuglin said. He held up another storage device called a Digital Virtual Disk or DVD alongside the compact disk. "They're the exact same size, they look the same, feel the same," he said. "But the DVDs are what we call, I guess, 'CD-ROMs on steroids,' because the amount of storage that goes on here is unbelievable!"

For example, Kuglin said there is enough storage capacity on one DVD to hold the information stored on at least 16,000 3½-inch floppy disks. Whereas a compact disk can hold roughly 18 million pages of text, Kuglin said in order to visualize the storage capacity of a DVD, one has to think in terms of miles. The pages of text one could store on a DVD, if stacked on the ground, would extend 61 miles up into the sky!

Transmission

Kuglin said he assumed most audience members could relate to the seemingly interminable wait involved in moving information from one point to another by computer. "That's a big bottleneck right now," he said. "Computers continue to evolve, but our system for delivering 'zeros' and 'ones' (the language of computers) is very slow to catch up."

Kuglin said the Internet is now being rebuilt to become the very high speed Network Backbone System (vNBS), or Internet II. He said the vNBS, which was begun in 1995, is 21,000 times faster than the average computer modem. For example, it can download a two-hour digital movie in a matter of seconds and the entire contents of the Library of Congress twice a day.

Satellite-delivered Internet

Kuglin explained that very high speed Internet connectivity was being provided for his presentation, and for the computer lab operating throughout the conference, by means of a satellite-delivered Internet connection, a new service available in only a few markets. McREL set up this connection in cooperation with the Helius/DirecPC company, he said.

Requests generated with the click of a computer mouse at the conference traveled through existing telephone lines to an Internet service provider, Kuglin explained. They were then transmitted from an uplink center to a satellite orbiting 23,000 miles above the conference hotel. Return information from the satellite was received through a satellite dish installed on the hotel's roof.

Uplink centers, Kuglin explained, are facilities with large numbers of satellite dishes which deliver computer language to satellites anywhere in America, all over Europe and as far west as parts of the Orient. Many uplink centers in the United States, such as the TCI National Digital Television Center in Denver, are lined up along the 105th Meridian, which is why Colorado is becoming known as the Optical Valley or Information Valley, he said.

Internet in the classroom

Teachers overwhelmingly favor Internet access in the classroom, although most don't yet have it, Kuglin said. He cited a recent survey which showed that 52 percent of teachers would like to see Internet access for students before the fourth grade, and another 33 percent think access is

appropriate for students by the seventh grade. "That's 85 percent," Kuglin said. "Those of you who are in direct line education or who may be classroom teachers know how hard it is to get teachers to agree on anything, so those are very, very high statistics."

Paradoxically, Kuglin said, data shows that only 11 percent of classrooms overall have Internet access and 72 percent of teachers grade their knowledge of its use at a "C" or below.

Kuglin demonstrated several digital tools now readily available to educators. Many of these are free resources for schools that already have Internet access:

- Web Whacker/ForeFront at http://www.ffg.com/
- MetaCrawler at http://www.metacrawler.com/
- Cable in the Classroom at http://www.ciconline.com/home.htm/
- Rocket Mail at http://www.rocketmail.com/
- Push technology through Pointcast at http://www.pointcast.com/
- Instructional design tutorial at http://www.allencomm.com/
- "eSchool Online" from ACTV at http://www.actv.com/

Technology is here to stay

"You've seen and heard a lot here," Kuglin concluded. "But it's important to understand technology. It is going to be here no matter what walk of life you're in. It will impact you in some way and it will not go away.

"But the drive for me is seeing the results in the classroom," he declared. "Kids turned off from learning are being turned on. Kids are meeting with success."

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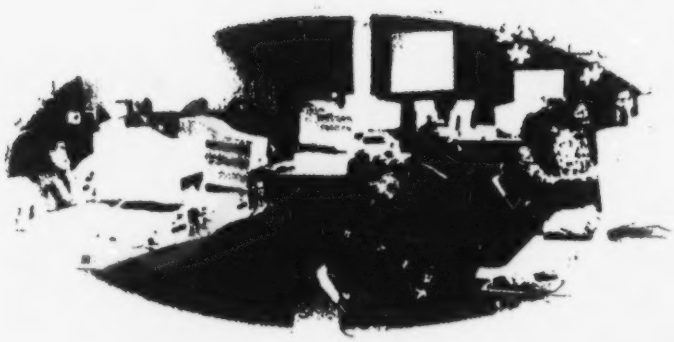

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by Jana Caldwell

What are the basics of instruction?

— Bob Marzano, deputy director of the McREL Institute

Does instruction really make a difference in student learning? Yes, said Bob Marzano, according to 22,000 studies over the past 30 years involving some 15 million students. Marzano described his analysis of this voluminous research, which measured the effectiveness of various instructional techniques. Using an approach called meta-analysis, he found the results from these many studies to be consistent.

What the research shows

Marzano said research results indicate the following:

- If students were isolated from any contact with the environment, it is assumed that none would achieve learning goals.
- If the same students wandered the world with random opportunities for learning, 11 percent would achieve learning goals through life experiences.
- If those students had an average K–12 classroom experience, 32 percent could be expected to achieve learning goals.
- Adding what Marzano termed as "average" use of "mediocre" innovations, the number of students attaining learning goals would climb to 50 percent.
- However, if those students were instructed with the best teaching innovations, 89 percent would achieve learning goals.

A hierarchy of human learning

Marzano described a three-level hierarchy of human learning, including the cognitive system, the metacognitive system and the self system.

The cognitive system, he explained, represents the lowest level of learning. This is the level at which most classroom instruction occurs in the form of declarative or procedural knowledge, he said. Declarative knowledge is information that is absorbed and understood — for instance, memorizing historical dates. On the other hand, procedural knowledge can be described as skills or processes students master — for instance, using the process of scientific inquiry.

In most classrooms today, Marzano said, instruction in science, geography and history is heavily weighted with declarative knowledge. Math instruction is about half declarative and half procedural. Language arts instruction includes three-quarters procedural and one-quarter declarative knowledge, he said.

Marzano described the next level in the hierarchy of human learning as metacognitive. At the metacognitive level, students think about their learning. They set goals for their learning, assess the resources they need, determine their own learning strategies and monitor their own progress. Another broad area of the metacognitive system is the learner's disposition toward learning, he explained. Does the learner persevere, seek clarity and push his or her own limits?

Topping off the hierarchy is the self system where learners think about how their beliefs impact their learning. Belief systems have a powerful impact on what students learn, Marzano explained. It is the level of emotional involvement students have with their learning that determines its impact. The learners' beliefs about themselves, others and the world, as well as their own personal efficacy, all interact as they generate goals for their own learning.

What isn't working?

If educators know how to increase learning dramatically, why then are students in many of the nation's classrooms demonstrating such poor performance? Marzano cited many reasons, including a lack of solid philosophical foundation for incorporating innovations. Another, he said, is a lack of public support for change. Marzano declared that — good or bad — the typical instructional innovation has a life span of three to five years, with new innovations crowding out older ones. Even great innovations don't always impact student achievement, he reminded his audience.

Restating his earlier question — if research shows that instruction increases learning, why aren't more students attaining learning goals? — Marzano suggested that teachers often are not clear in their own minds what the learning goals are and therefore do not communicate them well to students.

Setting learning goals

Marzano said teachers must make conscious choices about learning goals and then design lessons to elicit that learning. In many classrooms, he said, teachers themselves are not clear about the student learning they are seeking, so they may not be using the most effective instructional strategies. Indeed, it is often difficult to identify the type of knowledge that is desired, Marzano emphasized, citing the teaching of vocabulary as an example. Research shows that teaching vocabulary through imagery and fuzzy definitions has the biggest impact on learning, Marzano said. Yet how do most teachers approach vocabulary instruction? By having students memorize definitions and use words in sentences. Similarly, he continued, use of stories is the best strategy for teaching information that is factual or involves time or cause-and-effect sequences. Yet most teachers instead ask students to memorize dates.

Student beliefs matter too

Meta-analysis reveals that in terms of the hierarchy of learning, if students do not believe they can learn or that learning is important to them, no instructional strategies will produce effective, long-range learning. Marzano emphasized that teachers must be aware not only of the goals of the learning and the best corresponding instructional strategies, but also how to impact student beliefs about their learning. Only then will effective instructional strategies result in significantly greater learning.

by Lyn Chambers

Standards work at McREL

— John Kendall, McREL senior associate

Today's educators face the daunting task of sifting through a profusion of national education standards. Although standards represent an effort to provide common expectations, the standards themselves are not universal in content and form and often not readily applicable to the classroom. In this session, Senior Associate John Kendall described McREL's work in making standards easier to use at the school, district and state levels.

A compendium of standards

Kendall told participants how he, along with Deputy Director of the McREL Institute Bob Marzano, led a project to translate various national documents relating to standards into a common format and level of generality. The project team synthesized information from 116 documents into more than 200 standards and almost 4,000 benchmarks defining age-appropriate expressions of the standards. The result, *Content Knowledge: A Compendium of Standards for K–12 Education (2nd Edition)*, is a comprehensive resource describing current thinking on what students should know and be able to do in Grades K–12.

Kendall said McREL provides the compendium and other related services to help school districts interpret national standards and develop their own standards and benchmarks. McREL offers several services in the standards area, he said, including comparing national documents with selected state or local documents and translating grade-range benchmarks to grade-by-grade and course-level benchmarks.

"We clarify and provide coherence to the various categories of standards," Kendall explained. "What we're doing is applying a common method to the identification and description of knowledge and skills. We help answer the question, 'How do you determine and describe what children should know and be able to do?'"

The McREL process

The process for interpreting and streamlining standards that McREL researchers have developed in their work with various school districts first involves clarifying the wording and spirit of the standard, Kendall said. Standards are most useful if their wording is free of jargon and easily understood. "There is, however, the difficulty of balancing a technical document for educators against the needs of the public," he warned. "One approach is to provide the public with grade-range benchmarks, while reserving grade-by-grade descriptions for teacher documents."

Kendall also described the difficulty of conveying the "spirit of curriculum" when using only a straightforward description of information and skills. Such formats, he said, could be interpreted by teachers as a "drill and kill" approach. The other extreme is simply to offer a task description. "However," said Kendall, "teachers often find it difficult to deconstruct this kind of example. One solution is to provide paired examples of student performances to explain the concept or skill."

Another step in the process is to check for coherence among grade levels, said Kendall. "To ensure this coherence, concepts should follow logically. Skills such as the language arts 'meta-process' of editing should be applied appropriately to each age level." Standards should eliminate duplication of content across grade levels, as well as the confusion of skills-description with information-description.

A last step in compiling standards is to test for comprehensiveness, Kendall said. Do the standards adequately cover each discipline? And are the benchmarks written in enough detail to describe fully what students should know to meet each standard? For example, the benchmark that simply says "Understand the nature of matter" does not give a clear picture of

what this understanding comprises: It does not ask students to examine the smaller "pieces," such as protons, neutrons, etc., that make up matter, Kendall explained.

He said McREL's current research centers on determining what the essential standards are for today's student. Researchers have summarized each standard in the compendium and defined each in everyday terms that represent the skills and knowledge students should have. Working with the Gallup organization, McREL has surveyed a sample of adults nationwide on what they feel is essential for today's student to know and be able to do. When the research is done, McREL will publish a report describing the findings and issue a resource that refines and prioritizes the standards compiled in the compendium.

McREL's other standards-based work

Kendall outlined two other standards-related projects at McREL. In one, researchers are creating classroom activities tied to benchmarks. This growing body of classroom activities provides teachers with suggestions on how to teach benchmarks and can be adapted to fit individual teaching styles, he said.

Another project involves the development and synthesis of standards for career education in K–12. The development of career education standards will ensure that occupation-related courses, which are not currently included in the compendium, are implemented into school curricula, he explained.

A question-and-answer session and open discussion at the end of Kendall's presentation centered on the difficulties of moving toward a standards-based system mixed with equal measures of enthusiasm for the results.

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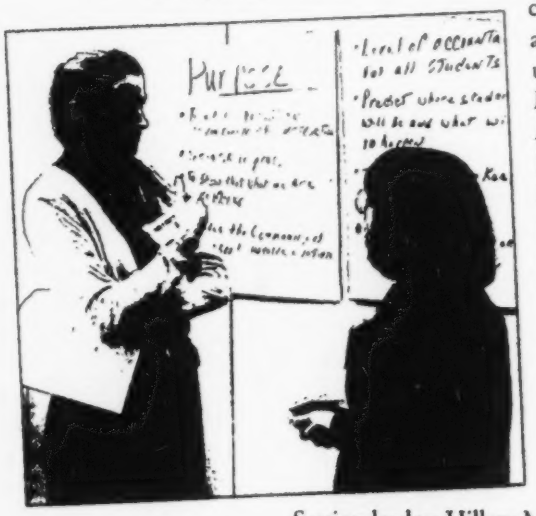
by Jan Stapleman

Performance activities

— Hillary Michaels and Ceri Dean, McREL senior associates

Often educators are unsure how to interpret standards and benchmarks. Because they are sometimes confused about what the standards and benchmarks mean, teachers can be unsure if they are designing lesson plans that will help students meet these standards and benchmarks. To clear up that confusion, research assistants at McREL, under the supervision of McREL Senior Associates Hillary Michaels and Debra Pickering, are developing performance activities keyed to the essential content standards and benchmarks. These activities are short, illustrative examples of tasks that address specific benchmarks.



Session leaders Hillary Michaels and Ceri Dean told participants this session was designed to serve dual, interactive purposes, offering participants an opportunity to get a sneak preview of performance activities while they are still being developed and allowing McREL to benefit from participants' feedback. "We need to know what is going to be useful to you," Michaels said, inviting participants to voice their comments and concerns.

Defining the terminology

The session leaders' first goal was to clarify the terminology related to standards-based education by defining several terms (designated in this discussion by quotation marks). Michaels explained that *Content Knowledge: A Compendium of Standards and Benchmarks for K–12 Education*, the seminal work by John Kendall and Robert Marzano, lays the foundations of standards-based education by setting forth more than 200 "standards" (general categories organizing the knowledge within a subject area) and almost 4,000 "benchmarks" (specific pieces of that knowledge).

Michaels defined "performance activities" as instructional tools that provide opportunities for students to learn the content outlined in benchmarks. In contrast, "performance standards" establish the acceptable level of understanding a student should attain at a given grade level. McREL researchers do not intend to prescribe performance standards, she said, believing instead that states, communities and districts should make those decisions locally.

Developing performance activities

In order to make the standards and activities as useful as possible, McREL has commissioned a nationwide Gallup poll to survey parents, teachers and others on what standards and benchmarks they feel are most essential, Michaels told session participants.

She emphasized that the performance activities being developed at McREL are not meant to dictate how teachers should teach but rather are offered as possible jumping-off points for teachers' own expertise, creativity and imagination. The two presenters displayed several examples of specific performance activities, asking session participants for feedback on the activities' usefulness and for ways they might be improved.

Examples of performance activities

Language Arts Standard 1: Demonstrates competence in the general skills and strategies of the writing process.

Level II: Upper Elementary (Grades 3-5)

Benchmark: Writes stories or essays that show awareness of intended audience.

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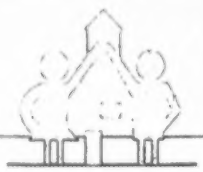


Activity: After an event (e.g., a field trip, a school play), students write differing accounts of the event. Students are divided into groups, each with a different audience (e.g., another class, parents, administrators) and purpose (e.g., to promote the place, to encourage administrators to allow future field trips, to explain what was learned). Teachers ask leading questions to encourage students to think about what the audience wants to know, what the students want the audience to do as a result of the account, and what type of document would be most appropriate (e.g., advertisement, letter, report). After finishing the assignment, students compare the types of information, styles, forms, etc., they used in their accounts.

Science Standard 14: Understands the nature of scientific knowledge.

Level IV: High School (Grades 9-12)

Benchmark: Knows that scientific explanations must meet certain criteria to be considered valid (e.g., they must be consistent with experimental and observational evidence about nature, make accurate predictions about systems being studied, be logical, respect the rules of evidence, be open to criticism, report methods and procedures, and make a commitment to making knowledge public).

Activity: Students identify and research disputed scientific phenomena or myths (e.g., water intoxication, spontaneous human combustion, Bermuda Triangle) and develop their own explanations of these phenomena based on the criteria for valid scientific explanation.

Comments from session participants

Session participants voiced a wide variety of reactions to several performance activity examples presented. While some said they would use the activities as written, others said they would change them in specific ways. Session leaders Michaels and Dean said that disparity demonstrates that each teacher has his or her own teaching style. They reminded participants that performance activities are meant to function only as helpful suggestions and should be adapted and enhanced according to each teacher's unique style and talents.

Noting that some of the activities would require very little time, while others would be more time-consuming, participants said they would like to see the suggested activities represent a continuum, to fit varying time availability. On a similar note, some educators requested cross-curricular activities addressing more than one content area, in order to help them get all the benchmarks taught within limited time available.

Some participants said activities should be accompanied by a list of expected products or responses from students.

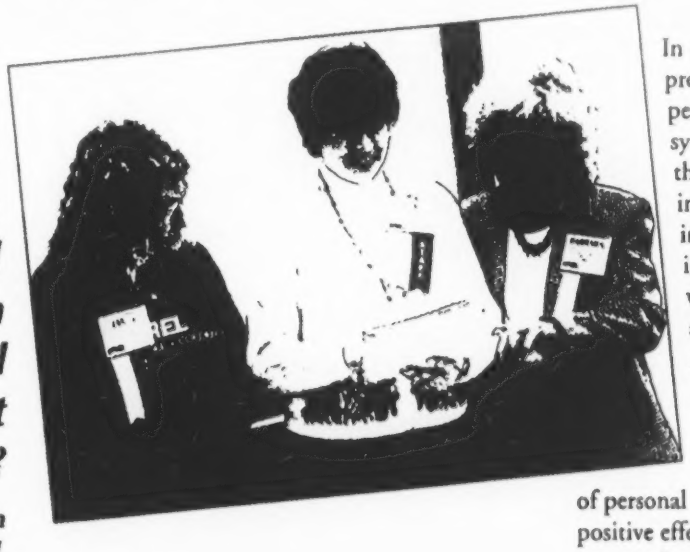
Others wanted McREL to provide indicators of acceptable performance for specific grade levels. That wish, Michaels and Dean explained, amounts to a request for performance standards, which McREL does not want to prescribe. They reminded their audience that these performance activities are designed for instruction purposes, not for assessment. They referred participants to a handout provided at the beginning of the session which listed a myriad of resources on the Internet for assessment information.

The performance activities developed at McREL will be available soon on the McREL web site at http://www.mcrel.org/standards-benchmarks/index.html.

by Lyn Chambers

The personal domain: what are the applied research and development issues?

— Barbara McCombs, McREL senior director; Patricia Lauer and Audrey Peralez, McREL senior associates



At a time when many education reform efforts are focusing on standards, three McREL researchers are reminding educators of the critical role that personal factors play in the learning process. In this session, Barbara McCombs, Patricia Lauer and Audrey Peralez challenged participants to examine that role.

The personal domain

The presenters described how underlying factors such as an individual's beliefs, perceptions and assumptions influence learning, and why this "personal domain" is so important to systemic change. "You can change the technical and organizational structures of education," said McCombs, "but it's really people who make the changes. If people aren't together in their beliefs and values, the change won't stick."

The presenters guided session participants through an exploration of the personal domain, its effects on learning, and ways to apply its concepts to a learner-centered classroom. They also looked at its application to professional development programs for teachers. At strategic points during the presentation, the audience participated in activities designed to help them relate the concepts to their personal experiences.

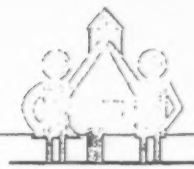
In the first part of the session, the three presenters explained the meaning of the personal domain and its importance to systemic education change. They define the term, they said, as the personal and interpersonal factors that motivate an individual to learn. These factors include one's fundamental beliefs and values, one's perceptions and assumptions relating to the education system, and the practices that foster positive relationships with other participants in the system.

The presenters gave several examples of personal domain qualities that can have a positive effect on learning: a classroom climate of trust and respect, the perception that a task is personally meaningful and relevant, having positive connections to others, and feeling validated and acknowledged as competent and worthy. Classroom strategies to develop these qualities might include support systems such as mentoring and networking, cultural sensitivity, and self-awareness and self-reflection assessments.

The Learner-Centered Model

In the second part of the session, participants learned how to connect standards-based reform efforts with learner-centered educational models. A learner-centered classroom, said McCombs, focuses on reaching students through practices that align with their personal beliefs and values. For example, she explained, "studies have shown that choice and control are vital to learning. Yet educators continue to design systems that are teacher-directed, rather than student-directed."

The presenters described the cognitive, affective, developmental, personal and social, and individual principles that factor into a Learner-Centered education model. (This model was developed by McCombs and McREL Senior Associate Jo Sue Whisler in *Learner-Centered Classroom and School*, published in 1997 by Jossey-Bass).



- *Cognitively*, learners seek meaning and relevance, filtering learning through their own unique perceptions, thoughts and feelings. The natural tendency for all individuals, according to learner-centered principles, is to direct one's own learning.
- *Affective* influences in the Learner-Centered Model include motivational factors, such as expectations for success, and emotional factors, such as fear and insecurity. Although individuals are naturally motivated to learn about things they perceive as personally meaningful, their motivation may need to be stimulated when the subject matter seems uninteresting or irrelevant to them.
- The Learner-Centered Model outlines the role of one's physical, intellectual, emotional and social development in learning, stressing that students do best when material is appropriate to their *developmental* level.
- It also recognizes the critical role of *personal and social* interactions with others in the learning process. "If learners participate in respectful and caring relationships with others who see their potential, genuinely appreciate their unique talents, and accept them as individuals," the principles state, "learning (is) enhanced." Positive student-teacher relationships are critical to an effective learning environment.
- The final domain describes how *individual principles* — each person's unique background and capabilities — influence learning, causing people to "learn different things, at different times, and in different ways." The session stressed that appreciating and understanding these differences is essential to creating effective learning environments for all students.

Personal change

So how do these principles of learning relate to the systemic and personal changes required by education reform? This question is critical, said the presenters, because many reforms have failed or succeeded based on how well they align with the principles of the personal domain. "If we really want our system to serve the needs of all students," said McCombs, "we must align people's beliefs and values with the research-based principles about learning and learners. We must use all kinds of approaches to connect the learner with the learning."

McCombs said McREL research has outlined four stages of personal change:

1. First, one must see a need to change. The need for change can sometimes be demonstrated by showing examples of current classroom practices that are working, along with those that are not. McREL has produced videos to show how the Learner-Centered Model can be successful.
2. Once individuals have said they will consider change, the next task is to help them identify with the change by showing actual examples of people accomplishing change in varied settings.
3. The third step is to provide support for risk-taking and experimentation, allowing each person to adapt the model to his or her own needs. At this stage, mentors and coaches play an important role.
4. Last, but certainly not least, is the use of support networks to sustain changes in thinking and practice as well as excitement for ongoing learning and change.

"You can change the technical and organizational structures of education, but it's really people who make the changes. If people aren't together in their beliefs and values, the change won't stick."
— Barbara McCombs

Help from McREL

The final part of the session focused on what McREL is currently doing to help teachers through the change process and toward a Learner-Centered Model of teaching. Current work includes expanding the sample video and supporting teachers with self-assessment and reflection tools. The presenters described the research McREL has done collecting data on Learner-Centered Models at the middle and high school levels, and helping teachers make changes in thinking and practice using self-assessment tools related to the model.

by Susan Toft Everson with Jan Stapleman

The school and organizational learning

— Susan Toft Everson, former McREL senior director; Don Burger and Dan Jesse, McREL senior associates

Although educators have been focusing on the subject of change for many years, a new understanding has evolved from three areas of research regarding the complexity and magnitude of that topic. First, investigators have created a body of knowledge about the content of change, often referred to as "best school practices." Other investigations have provided a knowledge base on the process, or management, of change in education. In addition, educators are now developing an understanding of the influence of the school itself on successful change. In this session, Susan Everson shared her expertise on these facets of change in education.

For the past two years, Everson told session participants, she and her McREL teammates have investigated the relationship between particular organizational characteristics and change (or "organizational learning") in education. After an extensive review of the literature and site visits to schools that were recommended as positive learning organizations, the team identified emerging themes that describe the relationships between organizational characteristics and organizational learning.

In the next three years, Everson told her audience, these themes will provide the groundwork from which McREL researchers will develop collaborative applied research and development projects in several school districts in McREL's region. These projects will be designed to produce practical tools and strategies that support successful school change by enhancing and stabilizing the school organization in which the change is made.

Establishing a common understanding

Before introducing the nine themes developed from the literature review and site visits, Everson first worked with participants to establish a common understanding, or conceptual framework, from which they could discuss this complex topic. To develop that framework, they worked first in small groups, and then as a whole, to clarify three areas:

1. First, they developed common definitions of terms used in this research area, including "organizational learning," "learning organizations," "learning community" and "professional learning community." Everson explained that the term "organizational learning" is often used synonymously with the term "change," as a means of describing how organizations adjust and "learn" over time.

2. Next, participants defined the term "organization" as a system with boundaries. Within those boundaries are four organizational "frames" developed by Lee Bolman and Terry Deal (*Reframing Organizations: Artistry, Choice and Leadership*, 1991): structural, human resources, political and symbolic.

3. Finally, Everson described the organizational functions into which the nine themes were grouped by her team. These four functions, or focus areas, include effective management, effective information systems, transition management and stakeholder engagement.

Emerging themes of organizational learning

Once this framework of understanding was established, Everson introduced the themes identified by her team. They are organized into the four organizational function areas described above, plus one crosscutting area:

Crosscutting themes:

- Theme I: There is an essential relationship between organizational learning and organizational change.
- Theme II: The culture of the school is important to organizational learning and change.
- Theme III: Shifts in organizations influence the process and structures of organizational learning and change.

Effective management:

- Theme IV: Managerial power and control influence organizational learning.
- Theme V: The role and function of leadership are related to organizational learning.

Effective information systems:

- Theme VI: Communication processes influence organizational learning.

Transition management:

- Theme VII: The management of the change phases that organizations pass through influences development.

Stakeholder engagement:

- Theme VIII: Stakeholder engagement in the change process influences organizational change.
- Theme IX: Stakeholder resistance is a barrier to organizational learning.

Everson led session participants in interactive discussions about the nine themes and how they relate to participants' own organizations. Participants discussed how they could apply what they had learned in the session to understanding change, or organizational learning, within their own organizational environments.

by Mary Lee Barton

Devising an effective school improvement plan can be an intimidating task, especially if there are many equally important issues to address. Where — and how — should the process begin? How can a school improvement committee determine the root cause of low achievement scores, discipline problems, or lack of community support, to name just a few possible areas of concern? Should a comprehensive school reform plan be adopted? And how should an intervention be implemented so that lasting change takes place?

Lou Cicchinelli, deputy director of McREL, told fall conference participants that school improvement efforts fail all too often because they are devised around a single solution to the school's most glaring problem. This approach can bring failure for two reasons, he said. First, the issue identified may be only a symptom of a different, less obvious, problem embedded more deeply elsewhere in the school system. Second, the problem may be correctly identified, but the solution devised is inadequate to effect changes in all aspects of the school's operations contributing to the problem. In each instance, he said, the lack of improvement results from the failure to view the school as an educational *system*.

It's the system

Cicchinelli explained that a comprehensive school reform initiative is a natural extension of school improvement programs in that it addresses the school as a whole. As such, he said, it is composed of a number of different pieces which interact with one another, influencing the functioning of the entire system. Therefore, those involved in designing and implementing school change must examine not just the obvious problem but each part of the system, including

- *the school's organizational components*, such as its leadership, use of information, involvement of community and culture;
- *the school's personal elements*, such as the quality of personal relationships among staff, the students' sense of self and their motivation;
- *the school's technical aspects*, such as its standards, curriculum, instruction and assessment.

In addition, Cicchinelli emphasized, those implementing change must take into account how these elements interact with and influence one another, as well as how this interaction will influence the planned interventions.

McREL's School Change Process Support System

Cicchinelli reported that McREL, as part of its Regional Educational Laboratory contract with the U.S. Department of Education, is developing a new process which will help schools navigate through the uncertain waters of designing and implementing successful change. When completed, he said, the School Change Process Support System (SCPSS) will include a variety of processes and tools that will assist educators in analyzing their schools and districts, identifying the problem or areas where improvements are needed, designing multidimensional solutions, and assessing the results.

Systemic integration and systemic change

— Louis Cicchinelli, deputy director of McREL

To illustrate, Cicchinelli asked participants to imagine the following scenario:

> District XYZ has been implementing standards-based instruction and assessment, but these measures haven't made a difference in student achievement. School administrators are seeing higher numbers of discipline problems, low attendance and a decrease in graduation rates. They want to know what they are missing and how to make standards-based practice work for all students.
>
> In this scenario, the SCPSS will help District XYZ examine personal elements in the system, perhaps uncovering the fact that students generally don't see the relevance of their learning tasks — hence, they are bored and acting out in class. An inspection of organizational elements might reveal that increasing discipline problems, fueled by a lack of parental involvement, are contributing to an unusually high teacher turnover. And careful analysis of the technical aspects of the system might reveal that achievement scores have not improved because teachers have not altered their lesson plans to align with district standards and curriculum which are now the basis of district-wide assessments.
>
> Once each of these elements — and their interactions — have been analyzed, the SCPSS will help users implement solutions that address specific problems and also honor the systemic nature of the change process.

Although the SCPSS is still evolving, Cicchinelli said, it eventually will include research on the change process, as well as a procedure for systematically identifying areas in need of improvement. This procedure will be supported by a database of information-collection strategies and instruments, including

- audit tools that can help determine the current status of a system and provide a baseline against which improvement can be measured;
- surveys that can identify perceived needs and critical areas for improvement;
- evaluation tools that can assess specific aspects of the system, the change process, and the impact of instructional programs; and
- guidance on the interpretation of inquiry results and recommendations about system changes and modifications.

Cicchinelli said the SCPSS is being designed so that it can be used either by external technical assistance providers, or by district or school staff as a self-administered diagnostic program that supports the planning, implementation and evaluation of school reform efforts. Finally, he concluded, flexibility will be built into the system in the form of program modules that can be easily used by schools and districts regardless of where they are in the change process.

by Jana Caldwell

Technology lab

— John Kuglin, former McREL senior director, and Chris Rapp, McREL senior associate

Educational technology experts often speak in visionary terms about how technology is changing classroom instruction. Some teachers are able to tap into the excitement, envisioning for themselves all the learning possibilities. Others, however, wander out of such presentations looking dazed and confused.

At the McREL fall conference, John Kuglin and Chris Rapp set up a state-of-the-art, multimedia computer lab providing high-speed Internet access via satellite. Their hands-on sessions in this lab gave conference participants a chance to sit down at computers and experience for themselves the amazing ways that technology can impact student learning in the classroom today. Kuglin and Rapp also assembled an impressive lineup of top technology providers who demonstrated their products. Participants discovered many opportunities for easy access to unlimited information, much of which is free to educators who have Internet access.

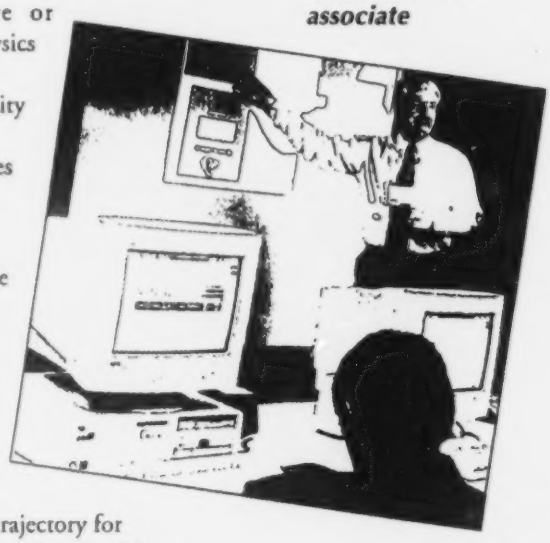
Like the ice cream chain offering 31 flavors, learning technology programs offer educators many options for enhancing classroom instruction. These tools have the potential to impact teaching and learning dramatically for both teachers and students, Kuglin told lab participants.

"Our goal is to help schools get the job done by putting technology to work as a tool for educators," Kuglin declared. "By pooling the expertise in this lab, we're able to create a noncompetitive technical environment that will assist the professional teacher in enhancing the quality of academic work while making the learning process more interesting and enjoyable for students."

Technology providers show their stuff

ACTV

Many visitors to the technology lab participated in a physics lesson conducted online. The demonstration, provided by ACTV Net's "eSchool Online" combined video capability, Internet access to unlimited web site information, and personalized interactive communication, all in one application. Try to envision the learning experience in the lab as you read the following recreation of the lesson:



In the top left corner of the screen, you can see and hear (either live or prerecorded) a physics professor from a prestigious university who is lecturing about the principles of velocity and trajectory.

To demonstrate the concepts he is discussing, an animated cannon and target appear at the bottom of the screen. You can experiment with velocity and trajectory for yourself by adjusting the tilt of the cannon and speed of the cannonball to determine what combination will score a hit.

Meanwhile, your instructor, who may be in the room with you or in another location, is "pushing" preselected Internet web sites to you and your classmates so you can explore them as well. These web sites provide further information to illustrate concepts in physics or related areas.

You can interact with your instructor by typing in questions via the chat line provided in the top right corner of the screen. The instructor can respond, either to you privately or to the entire class. Also you can "talk" with your classmates, wherever they may be, via the chat line.

"I've seen lots of new ideas in distance learning, but they're usually very expensive. These new ideas are not expensive. Our schools already have the LANs [local area networks] in place that are required to use these applications."
— Carol Shimeall, director of technology for public schools in Kearney, Neb.

Cable in the Classroom

Representatives from Cable in the Classroom (www.ciconline.com/) described the video program providing free access to a wealth of information through a variety of cable channels such as CNN, The Discovery Channel and The Learning Channel. These resources are curriculum-rich and free of commercials and copyright barriers, they said. As an added value, through a special partnership with McREL, Cable in the Classroom has linked its curriculum to academic standards compiled and assembled by McREL. Teachers can examine lesson plans that are tied to standards by grade and content level.

Ingenius

Folks from Ingenius were also on hand to demonstrate the company's video program, "What on Earth," a daily, multimedia news journal for kids, with password-protected materials for teachers. "What on Earth" offers lesson plans, cross-curricular activities and resource materials for students from the fourth through eighth grades on a wide variety of topics that tap into students' interests through an interdisciplinary approach. Ingenius educators and journalists transform global news events into compelling teaching tools.

For example, in lessons related to baseball's World Series, students learn appropriate vocabulary for their level. They get information about media coverage of the series, the role of women, and extensions of stories about the teams who are playing. Questions for students are presented in easy-to-difficult sequence, students submit their answers to Ingenius, and their answers are displayed online. A "Did You Know?" section for each lesson provides more facts about each story. Additional extensions of this application include "Word Wise" and "Kid Zone" which use games and activities to enhance learning. All are keyed to McREL content standards.

Teacher tools include lesson plans tied to the games and to the standards, and student worksheets that include print copies when not enough computers are available for each student. Teacher materials are password-connected and linked to textbooks and related literature and videos. Monthly themes are announced in advance and topics change daily.

And many more

Other providers featured at McREL's technology lab:

- U S WEST Technology, which makes technology grants available to teachers and also offers a traveling lab which trains teachers how to use the Internet. For more information, contact Dan Morris at dmorris@csn.net. (http://www.uswestwow.org/)
- Helius, providing high-speed Internet access which doesn't require wiring to the schools (http://www.helius.com/).
- Apple Computer, which offers resources about the impact of technology on academics and learning (http://www.apple.com/).
- Allen Communications, which provides course development using multimedia production online (http://www.allencomm.com/).
- Campus America, which offers the IMSeries, a powerful software system enabling educators to link every part of the instructional process. It allows professionals at every level to align standards, curriculum, instruction, assessment and evaluation to achieve superior student outcomes (http://www.campus.com/).
- eSoft, an instant plug-and-play Internet server providing a simple, one-stop web site solution for schools (http://www.esoft.com/).

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by Diane McIntyre Wilber

Paul M. Nachtigal

1997 McREL Award of Excellence

Paul Nachtigal received the 1997 McREL Award of Excellence at an evening reception held to honor him during the fall conference.

An internationally acclaimed expert in rural education, Nachtigal recalled receiving — but ignoring — two pieces of advice as a young man. His father, a high school principal in the 1930s, told Paul, "Never get into school administration." Later his graduate school adviser said, "Whatever you do, don't go out to small, rural schools. ... There's no future in rural education."

If he had taken that advice, rural education would not be as successful and many people's lives would not be as meaningful as they are today, McREL Executive Director Tim Waters told those gathered to honor Nachtigal. Waters was one of several former colleagues who spoke to the crowd about the many contributions Nachtigal has made to McREL and to rural education. Several longtime colleagues and dozens of well-wishers enjoyed reminiscing with Nachtigal and his wife and work partner, Toni Haas. Gracing the reception area were many early photos from Nachtigal's career and written tributes from admirers nationwide.

"Paul has always stood for integrity of education," said Deputy Director of the McREL Institute Bob Marzano, who has known and worked with him for more than 17 years. "He reminds us that it's about people; it's about kids."

In his remarks, Nachtigal described the reception as "a bit overwhelming" and dubbed it, "a lot of fanfare for what I consider to be a very common man." Many present said those comments are typical of his gentle humor and humble appreciation for the people and opportunities that have crossed his path over the past four decades.

Nachtigal worked for McREL for 15 years, from 1980 to 1995. There he organized and managed the Lab's Rural Institute, creating and facilitating rural school "clusters" that help build capacity for their participants. He counts among his proudest achievements while at McREL the bellwether Missouri School Improvement Program, and the Rural Schools and Community Development work that began in western South Dakota and now informs the work of the Annenberg Rural Challenge.

Nachtigal said he planned on retiring in 1995 when he left McREL but within a few months was recruited to be national director for Annenberg. There, Nachtigal and Haas manage a $50 million challenge grant to increase dramatically the number of "genuinely good, genuinely rural" public schools by the year 2000.

Other highlights of his career include two years working for the Education Commission of the States, where he directed a landmark national study of efforts to improve rural education. That study resulted in a much-quoted report, "Rural Education: In Search of a Better Way," published in 1982.

Prior to that, Nachtigal was associated for more than 10 years with the Ford Foundation, first directing the Leadership Development Program's region-at-large which included Appalachia, Alaska and other very rural areas. He then led an evaluation of Ford's Comprehensive School Improvement Program, writing the well-known report, "A Foundation Goes to School."

Paul's early career includes four years with the Colorado State Department of Education and seven years as a rural schools superintendent. He has consulted around the world (most recently in Belgium and Australia) and in this country for the Lilly Endowment, the Public Education Fund, the Blanden Foundation, the International Paper Company, the National Governors' Association and the National Conference of State Legislatures, among others.

Nachtigal said he's not yet ready to retire (again), particularly when he sees such an exciting time ahead for rural education. "What rural education does best today is to prepare students to leave

rural places, extracting human resources in the same way society extracts natural resources, be they food, timber or minerals," he said.

Nachtigal said he hopes in the future this country will recognize rural communities for their intrinsic value and no longer consider them to be second-rate, backward places. "Rural life has much to teach society about the value of being rooted in a place and finding ways to live well, to live sustainably, connected to the local culture and to the ecology of that place," he said.

"In the future, I believe rural schools will reconnect with their communities — both serving and being served by those communities. Rural education will serve community purposes as well as providing options for students to either stay, return or live well in some other community."

Nachtigal and Haas' latest publication, "Place Value," is expected to be released in March of 1998 by the ERIC Clearinghouse on Rural and Small Schools, Charleston, W.Va.

"There are few names in rural America, which, upon mention, evoke an immediate image. Paul Nachtigal and the image of the rural school are synonymous. Paul's professional life has epitomized a deep, personal commitment, not just to the rural school and the organization it represents, but to the myriad of children who have been directly impacted by his efforts."
— Vicki M. Hobbs, MIT-E Network, Columbia, Mo.

Reflections

"Teaching comes from the heart. Students are more willing to work for you if they know you care about them and they are accepted."

"I loved the reflection groups! It was great to meet with other educators and share values and beliefs! We ... felt very comfortable sharing different points of view. We were from the same area (rural) but not exactly the same place. We did not know this before we were in our session. It was awesome!"

"The reflection groups were helpful to think about the implications of what I've learned, how the information fits into what I already know or want to know and how it might change what I do in the classroom on a daily basis."

"I thought that the reflection groups were exceptional! It was nice to discuss issues with teachers that are not directly associated with my particular district. What a wonderful sounding board!"

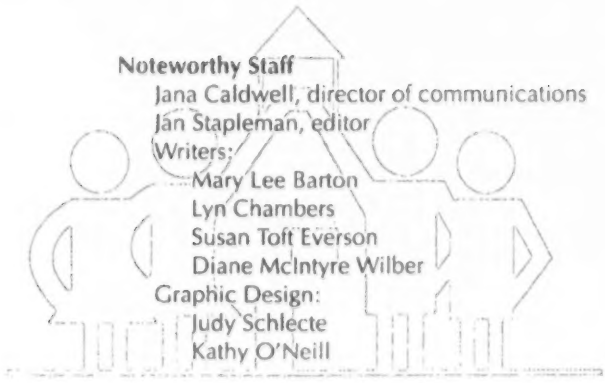
Many people contributed to the success of the McREL fall conference.

McREL Senior Director Fran Mayeski led a talented team of conference organizers. It was her leadership and diplomacy that built a conference from their expertise, creativity and hard work.

Fran expresses her gratitude to members of the Regional Field Services Team: Lori Reinsvold, Colorado; Gary Price, Kansas; Dave Bethel, Missouri; Mary Ann Losh, Nebraska; Marilyn Ridenhower, North Dakota; Ruth Smith, South Dakota; and Eric Newton, Wyoming.

She also thanks all McREL staff members — each of whom contributed to the conference in some way — with special recognition to the McREL state liaisons: Ceri Dean, Colorado; Ken Dickson, Kansas; Susan Toft Everson/Vivian Elliott, Missouri; Sandy Berger, Nebraska; Nilda Simms, North Dakota; Sandy Berger/Gail Clark, South Dakota; and Mike Arnold, Wyoming.

Finally, Fran credits additional contributors including Kathy McFarland, Mary Harris, Margie Simineo and Debbie Welch.



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